



Element 10 - Community Awareness and Emergency Preparedness

Villawood Site Pollution Incident Response Management Plan (PIRMP)

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1 INTRODUCTION

1.1 BACKGROUND

PPG Industries Australia Pty Limited (“the licensee”) is the holder of Environment Protection Licence No. 1996 (“the licence”) issued under the Protection of the Environment Operations Act 1997 (“the Act”). The licence authorises the carrying out of activities at 9 Birmingham Ave, Villawood, NSW, 2163 (“the premises”) for the production of chemicals and their storage.

This Pollution Incident Response Management Plan (PIRMP or Plan) has been written to comply with the legislative requirements under the Protection of the Environment Operations Act 1997 (POEO Act), the Protection of the Environment Operations (General) Regulations 2009 (POEO Regulation) and the Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012 (“the amendment”).

The requirement for a PIRMP must:

- be kept at all times at the premises to which the environment protection licence relates;
- include information as detailed in the Act and be in the required form as required in the amendment;
- be tested on an annual basis and within one month of any pollution incident occurring with the course of an activity to which the licence relates as per clause 98E (2)(b) of the amendment; and
- be immediately implemented if a pollution incident does occur in the course of an activity so that material harm to the environment is not caused or threatened.

2 FACILITY INFORMATION

PPG Industries at the Villawood site undertakes activities of batch mixing, milling, grinding, dispersing and packaging of water-based paints.

2.1 FACILITY DETAILS

Facility details as listed in the site Environmental Protection Licence 1996 are as follows:

Company	PPG Industries Australia Limited
Postal Address	PO BOX 204, Chester Hill. NSW 2162
Site Address	9 Birmingham Ave, Villawood. NSW 2163
Scheduled Activities	Chemical Production Chemical Storage
Contact Number (general enquiries)	02 9794 1200
Contact Number (Environmental Hotline)	02 9725 7953

Below is a google image of the location of the PPG Industries facility. Detailed site maps are presented in Annex A.



The site location (including surrounding land users) and layout is presented in Figures 1, 2 and 3 in Annex A.

3 POLLUTION INCIDENT RESPONSE MANAGEMENT (PIRM)

3.1 OBJECTIVES

The objectives of the plan are to:

- Ensure timely and comprehensive communication about a pollution incident on site to all staff at the premises, the Environmental Protection Authority (EPA), other authorities and the community who may be affected by the impacts of the incident;
- Minimise and control the risk of a pollution incident at the facility by identifying any environmental risks and development of planned actions to minimise and manage those identified risks; and
- Ensure the plan is implemented by trained employees, identify those employees responsible for the implementation of the plan, and ensure the plan is regularly tested for accuracy, currency and suitability.

The PIRMP will be implemented only if material harm to human health or the environment occurs or threatens to occur.

3.2 HAZARD IDENTIFICATION AND RISK CONTROL

3.2.1. POLLUTANT INVENTORY

Paint manufacturing by nature has a list of pollutants which are used as part of the process and as a result have been considered under the PIRMP. The list below covers the main pollutants, and the related potential incidents, for the Villawood facility.

- Pollution to land from solvents, ammonia or other chemicals stored onsite;
- Surface water pollution from solvents, ammonia or other chemicals stored onsite;
- Groundwater pollution from solvents, ammonia or other chemicals stored onsite;
- Air pollution from paint manufacturing process; and
- Fire in production plant

A list of the potential pollutant sources, maximum quantities that may be stored at the Villawood facility, and the approximate locations of each pollutant source are detailed in the table below:

Pollutant	Maximum Quantity	Location	Map Reference
Ammonia 23 Solution	1 x 4000 litres above ground tank	Ammonia Tank	CG5/DG2
Emulsion (Primal RHS-884)	350,000 litres	Tank Farm 2	Tank Farm #2
Acticide BW2	N/A	Manufacturing Plant and Bulk Store	DG1 and DG3
Teric N9	N/A	Manufacturing Plant and Bulk Store	DG1/CG3 and DG3/CG8
Texanol (NX795) Tank	50,000 litre above ground tank	Tank Farm 1	Tank Farm #1
Propylene Glycol	50,000 litre above ground tank	Tank Farm 1	Tank Farm #1
Non-DG or Class 3 Chemicals	2,000 litres	Various drum storage areas	Manufacturing Plant and Empty Drum Bund
Small amounts of Class 3 solvents and paints.	40 litres	R&D, upstairs in operations building	CG4
Acetylene cylinders and oxygen for welding	6 cylinders (21 cubic meters)	Maintenance Shop	CG6
WD40 and drums of diesel.	500 litres diesel 12 cans WD40	Maintenance Shop	CG6
Diesel	200 Litre AST and 50L Drums	Diesel Store Shed (AST) and Maintenance Shop	CG8
First Flush System	40,000L Sump	Adjacent to Tank Farm 2	First Flush System

Figures 2 ad 3 illustrating the locations of the identified pollutants in the table above and the stormwater easement are located in **Annex A**. Chemical storage locations on-site are presented in Figure 2. For chemicals specifically required to be listed in the sites dangerous goods manifest, locations are shown in Figure 3.

This Plan considers air, surface water, groundwater and land pollution incident impacts. Overall well designed and documented environmental management systems are in place to effectively minimise the likelihood and impact of any of these potential pollution incidents.

3.2.2. HAZARD IDENTIFICATION

Potential environmental hazards specific to Villawood facility operations include:

- Chemical storage spills/ leaks (emulsion, ammonia, diesel, other dangerous goods);
- Uncontrolled air emissions release to air (odour, dust, volatile organic compounds);
- Mis-management of potentially hazardous waste materials;
- Fire (electrical and other ignition sources);

A risk assessment has been completed providing a description and likelihood of occurrence for hazards identified at the site and is presented in **Annex B**.

3.2.3. POLLUTION CONTROL MEASURES

The Villawood facility has implemented a number of pre-emptive controls/actions which minimise the risk of harm to the environment, which include:

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- bunded hard stand areas to store chemicals and products, designed to contain spills;
- Interlocks on storage tanks to prevent overfilling as well as high level trips;
- Easement stormwater flood gate to contain spills from going off-site;
- maintenance system to ensure operation of equipment deemed critical (if equipment failed would result in environmental incident) is maintained and in good working order;
- first flush system to collect any spills or overflow of bunded areas prior to migrating off-site;
- provision of spill kits located across the facility for quick response to spills;
- provision of eye wash stations across the facility for quick response to any eye related medical requirements;
- Dust collectors and filter system for dust and associated with paint production;
- provision of material safety data sheets (MSDS) located within storage areas (**Annex D**);
- Sprinkler system as well as fire extinguishers, hose reels and fire blankets; and
- Alarms.

3.2.4. TRAINING

The PPG Training Procedure (EHS-VIL-05-001) describes training program for all PPG staff. Training requirements for persons and their back-ups, relevant to their role and responsibility (this does not include external certifications and licenses for subcontractors) are contained on SharePoint under Element 5 in the training matrix (EHS-VIL-05-002).

The training matrix covers environmental topics such as:

- Air Emission Awareness;
- Spill Prevention, Response and Reporting Requirement;
- Waste Segregation;
- Storm water Management.

Emergency Response training covers off environmental emergencies such as an uncontrolled spill. The training topics for emergency response contained within the training matrix are:

- Emergency Management Team Responsibilities;
- Emergency Evacuation Awareness;
- Emergency Evacuation Drills;
- ERS Team Member Response Training topics.

3.2.5. RISK ASSESSMENT

Potential environmental hazards identified for the site, and the likelihood of any such hazards occurring, are contained in the risk assessment in **Annex B**.

3.3 INCIDENT RESPONSE

The following sections and Section 3.5 provide details on the incident response, including the communication and on-site emergency response actions for responding to an incident that has resulted in a material impact to human health or the environment.

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A pollution incident is required to be immediately notified if there is a risk of 'material harm to the environment', defined under section 147 of the POEO Act as:

- a) harm to the environment is material if:
 - i. it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
 - ii. it results in actual or potential loss or property damage or an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and
- b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

3.4 INCIDENT RESPONSE PROCESS

Incident response tables have been developed for risks considered most likely to occur both in a general nature for spill management, uncontrolled air emissions and fire management and also more specifically for bulk hazardous chemicals relevant to the facility and include the following:

- Spill Incident Response – General
- Spill Incident Response – Acticide BW20
- Spill Incident Response – Ammonia 23
- Spill Incident Response – Primal RHS-884
- Spill Incident Response – Teric 9
- Spill Incident Response – Texanol
- Spill Incident Response – Propylene Glycol
- Uncontrolled Air Emissions Incident Response (Odour, Dust, VOCs)
- Fire Incident Response

Individual incident response plans are presented in **Annex C**.

3.5 COMMUNICATION

3.5.1. INTERNAL COMMUNICATION

All incidents are to be reported immediately to either the onsite EHS Manager either in person or by mobile (0436 812 772) or via the sites internal emergency number (1111) or direct to security (02 97257953 or 0428 609 953), where security can then initiate the correct response, such as contacting:

- Emergency Response Squad (ERS) via radio;
- emergency services via 000; and
- other responders such as EHS via telephone.

The EHS Manager is responsible for notifying the site Operations Manager (0436 648 094), ANZ EHS Manager (0439 711 088). In the absence of the EHS Manager, the site Operations Manager (0436 648 094) is responsible for the Incident Response coordination and should be contacted directly.

3.5.2. EMERGENCY SERVICES

The key external contacts that are required to be notified are listed below. If the incident presents an immediate threat to human health or property call “000”.

EMERGENCY SERVICES	WORK	AFTER HOURS
EMERGENCY (Fire / Ambulance / Police)	000	000
CLEANAWAY EMERGENCY SPILL HOTLINE	1800 774 557	1800 774 557

3.5.3. GOVERNMENT AGENCIES

The key external contacts that are required to be notified are listed below. If a pollution incident occurs where “material harm” to the environment is caused or threatened the notification protocol set out in Section 3.4.1 is followed. If the incident does not require an immediate attention notify the authorities in the order listed in section below.

RELEVANT AUTHORITY NOTIFIABLE ORDER	WORK	AFTER HOURS
NSW EPA	131 555	131 555
CITY OF CANTERBURY BANKSTOWN COUNCIL	9707 9400	9707 9400
MINISTRY OF PUBLIC HEALTH UNIT - CAMPERDOWN	9515 6111	-
SAFework NSW	131 050	131 050

3.5.4. LOCAL COMMUNITY

Community stakeholders that are potentially affected by an incident will be notified immediately by phone call after being instructed by one of the key site contacts. PPG Industries has and would continue to undertake community and stakeholder consultation where necessary.

PPG Industries will continue to update the community where required as outlined in PPG Villawood EHSMS Document, Element 10 – Community Awareness and Emergency Response Procedures.

Immediate Neighboring Sites	Property Address	Work	After hours
Villawood Detention Centre	15 Birmingham Ave	9780 9220	9780 9220
Orica	2 Christina Road	1800 100 327	1800 100 327
Wridgways	14 Epic Place	9645 7700	9645 7700
Industrial Unit Complex	7 Birmingham Ave	See tenants below	
Dew Point Engineering	Unit 10/7 Birmingham Ave	0412 533 707	0412 533 707
Tru Blu Beverages	12 Birmingham Ave	02 9912 6700	N/A
Viking Imports	Unit 12/2B Birmingham Ave	02 8004 0399	N/A
AUSFAB	Unit 1/7 Birmingham Ave	9723 3399	
Lulu Constructions	Unit 2/7 Birmingham Ave	9123 8825	
Hilal Meats	Unit 3/7 Birmingham Ave	9724 2966	
Vacant	Unit 4/7 Birmingham Ave	N/A	N/A
Vacant	Unit 5/7 Birmingham Ave	N/A	N/A
SIF Communications	Unit 6/7 Birmingham Ave	9723 7172	
Vacant	Unit 7/7 Birmingham Ave	N/A	N/A
Vacant	Unit 8/7 Birmingham Ave	N/A	N/A

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Vacant	Unit 9/7 Birmingham Ave	N/A	N/A
Melli Mechanical Repairs	Unit 11/7 Birmingham Ave	9728 4177	
Minipack Packaging	Unit 12/7 Birmingham Ave	9724 3616	
Nazar Kebabs	Unit 13/7 Birmingham Ave	0424 761 982	0424 761 982
Vacant	Unit 14/7 Birmingham Ave	N/A	N/A
Vacant	Unit 15/7 Birmingham Ave	N/A	N/A
Villawood 7	Unit 16/7 Birmingham Ave	8747 4717	8747 4717

The communication method may change depending on the nature of the event or as directed by the relevant agency. Regular updates if required will be provided to the affected community throughout the course of event by one of the key site contacts.

Complaint Hotline number is 02 9725 7953, and is available for members of the public to raise any concerns in regards to PPG operations.

3.6 ADMINISTRATION

3.6.1. EMPLOYEE AWARENESS & TRAINING

All new employees will be made aware of the requirements of the plan as part of their induction process. All employees are required to complete environmental training on an annual basis as per the training matrix (described above in Section 3.2.4).

In addition to the above induction, details of the plan will be provided to the key contacts and members of the emergency response team as part of the EMP annual training.

3.6.2. EVALUATION/TESTING

This plan is tested on an annual basis for accuracy, currency and suitability and within one month of any pollution incident occurring in the course of an activity to which a licence relates. A scenario is conducted based on the hazards identified. The plan is updated following the testing to make sure that it is current and suitable and reflective of onsite processes.

If the plan does not require any updates following the annual testing, at a minimum the following must be reviewed and updated:

- all phone numbers
- neighbouring properties (name and contact details)
- site emergency numbers

The below table provide details of testing activities.

Date	Person (s) present	Manner of Testing
26 June 2017	Mike Allen (EHS Manager), Robert Byrne (ERS Bulk Store Supervisor), Wes Pearce (ERS Bulk Store Operator), James Gudjonson (Bulk Store Operator).	The site tested the PIRMP during a test scenario as required under EPA License requirements. During the test, all parties carried out the correct actions to stop, isolate, contain, and raise alert to an IBC spill on-site.
9 May 2018	Troy Brimmer (Plant Operator), Bindu Malla (EHS Rep), Edward Clarke (Supervisor), Robert Byrne (ERS Bulk Store Supervisor).	A scenario of an IBC containing Ammonia, that had developed a leak due to valve

		damage, was tested in the ammonia unloading area.
23 May 2019	Glenn Hughes (EHS Rep), Wesley Pearce (ERS), Robert Byrne (ERS), Sean Lawrence (ERS).	A scenario of a leaking propellant from the spray can ignited by electric motor in close proximity resulting fire on flammable materials and pressurized spray cans.
23 July 2019	Glenn Hughes (EHS Rep), Miroslav Adamovic (ERS)	A scenario of a leaking glycol spill at the roadway due to hose coupling failure while transferring glycol from tanker to the site glycol tank.
09 April 2020	Bindu Malla (EHS Rep), Lauren Harkin(EHS Rep), George Lambropoulos (Production Manager); Merv Bradbury (Operator), ERS (Miroslav)	Minor Ammonia leak from Tank 5 meter (within the factory) review.
16 April 2020	Bindu Malla (EHS Rep), Lauren Harkin(EHS Rep), George Lambropoulos (Production Manager) , Troy Brimmer (Operator),	Teric N9 minor spill in Bulk store (within the factory in banded area with ventilation) review.
07 Oct 2020	Glenn Hughes (EHS Rep), Bindu Malla (EHS Rep), Sean Lawrence (ERS, Operator).	A scenario of Ammonia leak into occupied confined space – Disperser
08 Oct 2020	Glenn Hughes (EHS Rep), Bindu Malla (EHS Rep), Gavin Jones (Engineering Manager), Wesley Pearce (ERS, Operator), Ted Clarke (Supervisor), Rob Bryne (ERS, Team Leader), George Lambropoulos (Production Manager) , Karkaletsis (Operation Manager),	A scenario of Air dust reaching offsite.
14 Oct 2020	Glenn Hughes (EHS Rep), Bindu Malla (EHS Rep), Miroslav (ERS, Operator).	A scenario of Ammonia leak into Specialty Making area through damaged pipe.
02/06/2021	Lauren Harkin (EHS Rep), George Lambropoulos (Production Manager), E Clarke, Donna Karkaletsis (Operation Manager), Rob Byrne (ERS, Team Leader), Wes Pearce (ERS, Operator) , Gavin Jones (Engineering Manager), Bindu Malla (EHS Rep) and Ashley Ogle (Quality Manager)	A scenario of Forklift collision while transporting Ammonia IBC (within the factory in banded area with ventilation)

Any amendment details to the plan are documented in document history, **Section 4** below.

3.6.3. PLAN AVAILABILITY

In accordance with Section 153D of the POEO Act, the plan is available to all site employees via the intranet (SharePoint) located within the sites Environmental Health & Safety Management System under Element 10 (procedure number EHS-VIL-10-012). This plan has also been placed on the internet on the Taubmans website (<http://www.taubmans.com.au/about/environment-health-and-safety>). A hard copy of the plan will also be available at the site, 9 Birmingham Ave, Villawood in reception and security office.

3.6.4.ACCOUNTABILITY

The following table outlines the key personnel who are accountable for the PIRMP at the site and the relevant contact details. Should the EHS Manager be absent the Operations Manager is responsible for Incident Response coordination and should be contacted directly.

Villawood EHS Manager	PRIMARY INCIDENT RESONSE COORDINATION Implementation, Testing. and updating of this plan	0436 812 772
Villawood EHS Coordinator	PRIMARY INCIDENT RESONSE COORDINATION Updating of this plan.	0408 892 297
Villawood Operations Manager	BACK UP INCIDENT RESONSE COORDINATION Notification to adjacent neighbours/properties and testing	0436 648 094
ANZ Operations Director	Liaise with media	0427 500 624
ANZ EHS Manager	Notification to relevant authorities	0439 711 088

4 DOCUMENT HISTORY

All changes made to this procedure EHS-VIL-10-012 should be documented in the document history table below and must be loaded onto the Taubmans website.

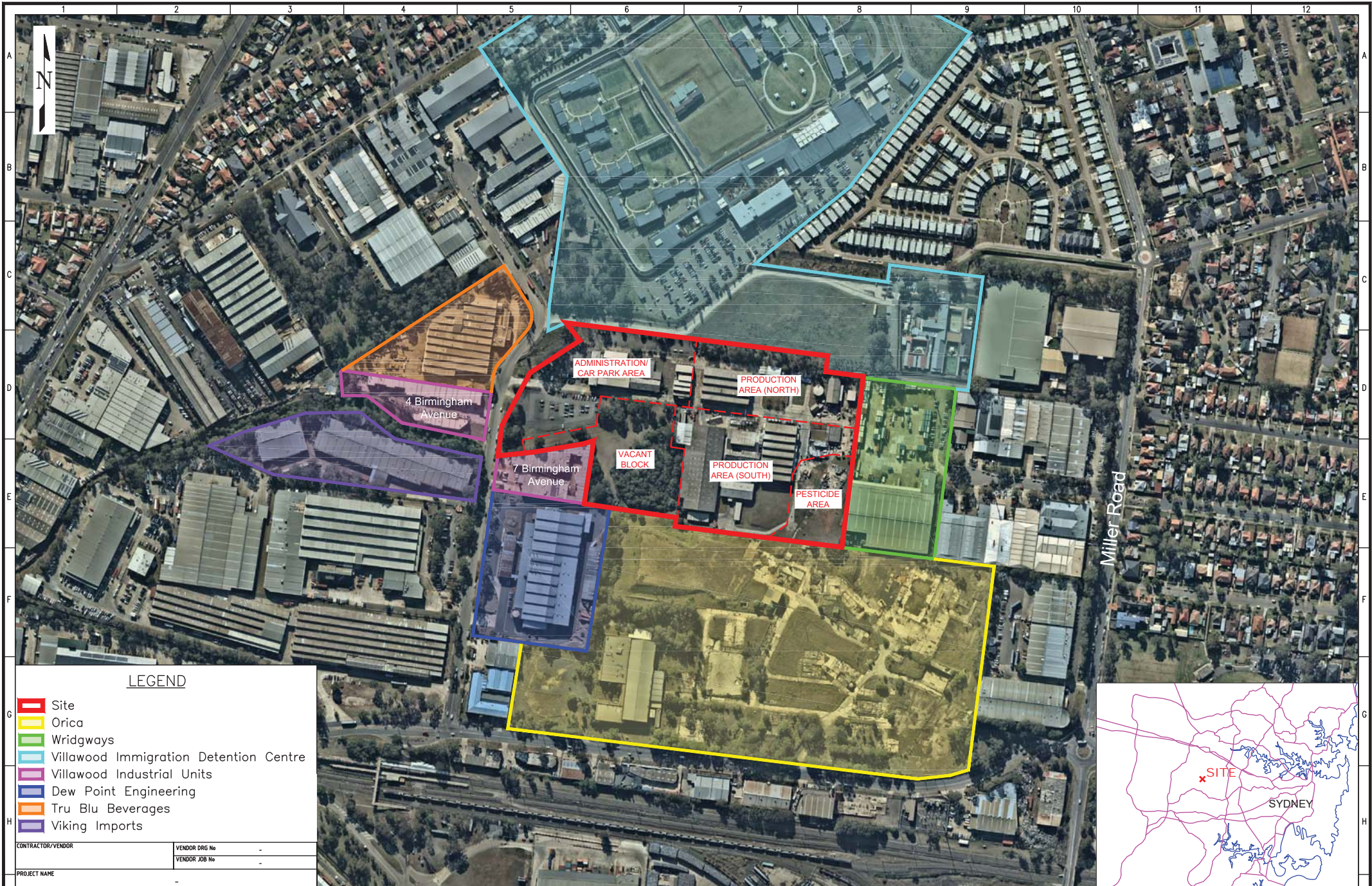
Revision	Date	Changes made	Completed By
01	03/06/2014	Publication of procedure.	EHS Manager
02	23/10/2014	Change of document number	EHS Manager
03	28/01/2016	Removed 'effective dates' not required as this is a live document.	ANZ EHS Manager
04	20/09/2016	No changes made.	ANZ EHS Manager & EHS Manager
05	28/06/2017	Update of entire procedure to include risk assessment, updated emergency contact details, surrounding neighbours, identification of environmental hazards, inclusion of training requirements, facility dangerous goods information, requirements of annual review and alignment of emergency response process with the sites emergency response plan (EHS-VIL-10-001)	Environmental Specialist
06	20/09/2017	'Complaint' added to hotline number – word complaint was removed in last review when updating the entire document.	EHS Manager
07	22/06/2018	External consultant review and document update.	Environmental Specialist
08	01/08/2018	External consultant review and document update. Update of Site Plans	Environmental Specialist
09	02/08/2018	NSW EPA Review and External consultant update of figures and risk assessment.	Environmental Specialist
10	21/08/2018	Update figures and associated references for accuracy based on up to date chemical storage locations.	Environmental Specialist
11	13/05/2019	EHS Manager, Operation Manager and Security mobile number and direct contact number updated.	EHS Coordinator
12	31/05/2019	Test activities table updated under section 3.6.2 Evacuation/Testing. ERS to wear SCBA removed from the ANNEX C – INCIDENT RESPONSE PLANS	EHS Coordinator

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13	30/07/2019	Test activities table updated under section 3.6.2 Evacuation/Testing.	EHS Coordinator
14	10/03/2020	EHS Manager, ANZ EHS Manager and EHS Coordinators contact numbers updated under sections 3.5.1 and 3.6.4. Training Material title updated under section 3.2.4. Removed CG5 Aerosol Paints cans from the table 3.2.1 and update Chemical Storage and Drainage drawing.	EHS Coordinator
15	09/04/2020	Test activities table updated under section 3.6.2 Evacuation/Testing, no other changes to the document required.	EHS Coordinator
16	16/04/2020	Test activities table updated under section 3.6.2 Evacuation/Testing, no other changes to the document required.	EHS Coordinator
17	07/10/2020	Test activities table updated under section 3.6.2 Evacuation/Testing, no other changes to the document required.	EHS Coordinator
18	08/10/2020	Test activities table updated under section 3.6.2 Evacuation/Testing, no other changes to the document required.	EHS Coordinator
19	14/10/2020	Test activities table updated under section 3.6.2 Evacuation/Testing, no other changes to the document required.	EHS Coordinator
20	10/02/2021	Spill clean-up vendor updated on Annex c tables.	EHS Coordinator
21	02/06/2021	Test activities table updated section 3.6.2 Evacuation/Testing,	EHS Coordinator

ANNEX A – FIGURES

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LEGEND

- Site
- Orica
- Wridgways
- Villawood Immigration Detention Centre
- Villawood Industrial Units
- Dew Point Engineering
- Tru Blu Beverages
- Viking Imports



CONTRACTOR/VENDOR	VENDOR DRG No	-
	VENDOR JOB No	-
PROJECT NAME		
-		

REV	REVISION DETAILS	DRN.	DRAFT ENG. CHK'D	APPROVED	DATE
1					

CHECKED:	SIGNATURES
MECH./PROC. ENGINEER:	
INST./ELEC. ENGINEER:	
APPROVED:	

THE RESPONSIBILITY TO VERIFY ALL DIMENSIONS ON SITE RESTS WITH THE CONTRACTOR

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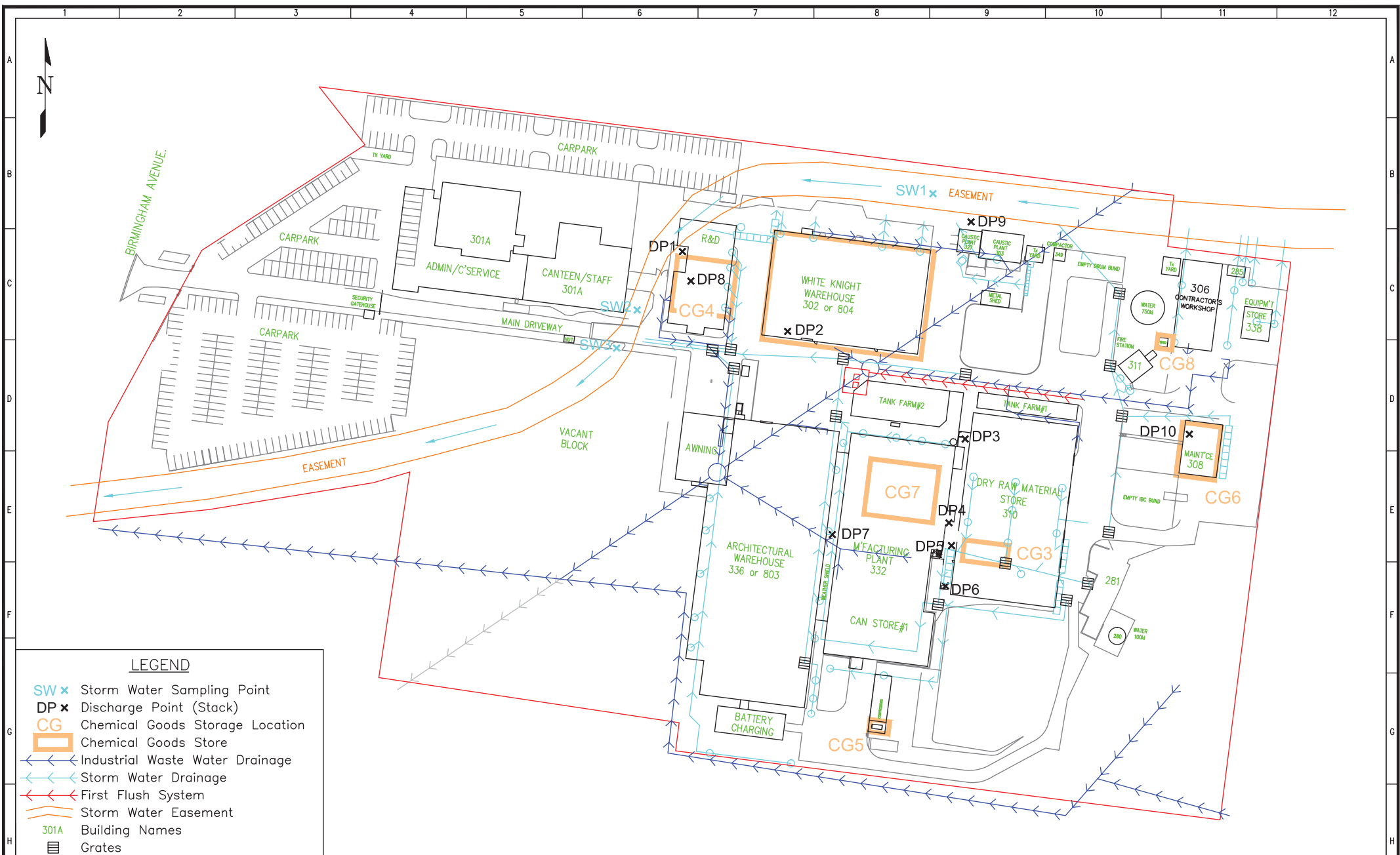
DRAWN BY: Kleinfelder Australia	DRAFTING CHECK -
	INST/ELEC ENG CHECK -
	APPROVED -

SCALE: 1:4000	DISCIPLINE -
DATE: 11.07.2018	DWG TYPE -
SITE: Villawood	
TITLE: Site Location	

PPG Industries Australia Pty. Ltd.

14 McNAUGHTON RD CLAYTON VIC 3168 PH (03) 92634942

AREA/SYSTEM -	SUB AREA/SYSTEM -
DRG. No 1	REV. A3



LEGEND

- SW x Storm Water Sampling Point
- DP x Discharge Point (Stack)
- CG Chemical Goods Storage Location
- Chemical Goods Store
- ←←← Industrial Waste Water Drainage
- ←←← Storm Water Drainage
- ←←← First Flush System
- — — Storm Water Easement
- 301A Building Names
- Grates

CONTRACTOR/VENDOR	VENDOR DRG No	-
	VENDOR JOB No	-

PROJECT NAME
-

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CHECKED:	-	-
MECH./PROC. ENGINEER:	-	-
INST. ELEC. ENGINEER:	-	-
APPROVED:	-	-

SIGNATURES	REFERENCE DRAWINGS	DRG. No.
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	INST/ELEC ENG CHECK -
	APPROVED -

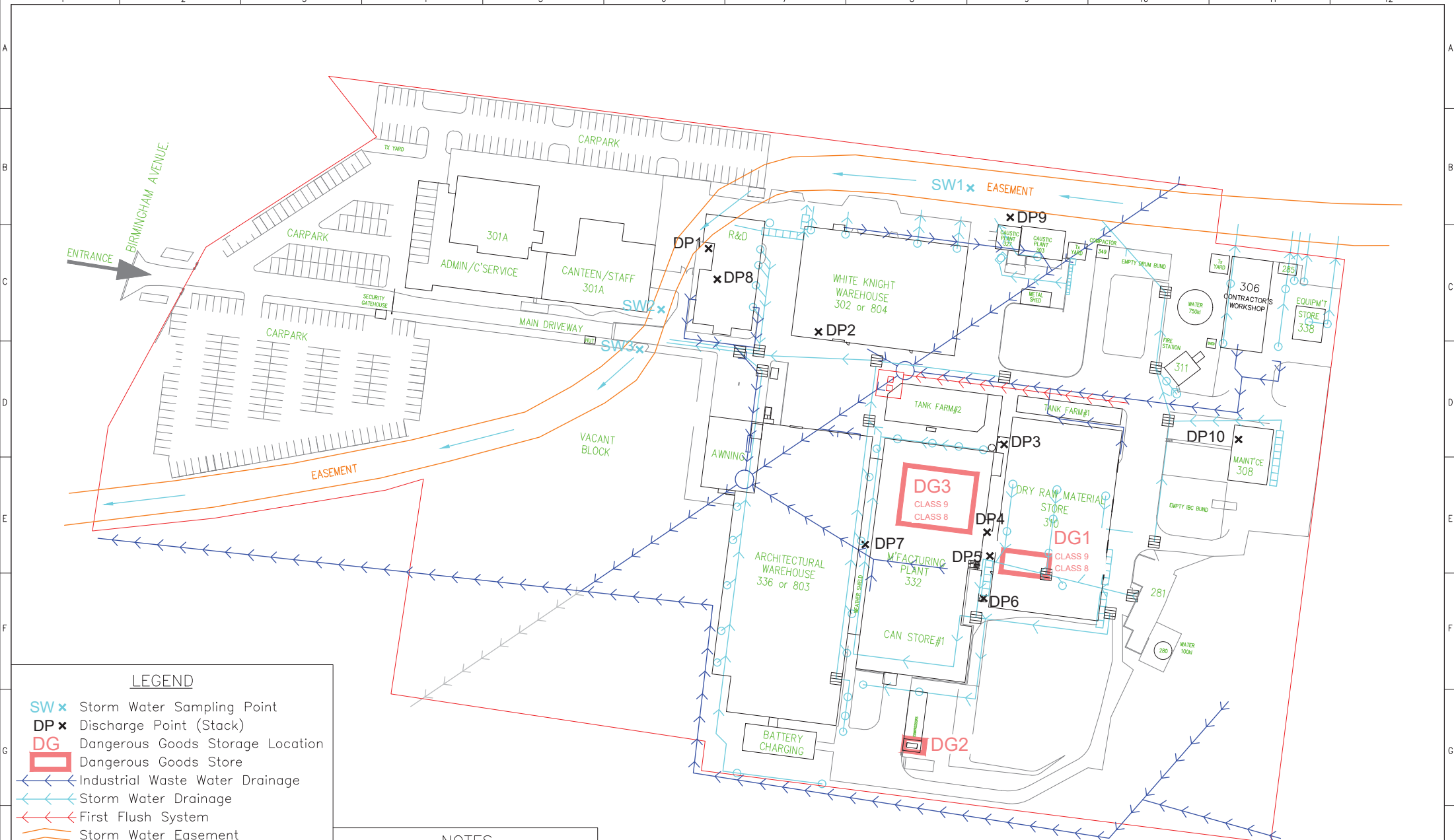
SCALE 1:1250	DISCIPLINE -
DATE 11.07.2018	DWG TYPE -
SITE Willawood	AREA/SYSTEM -
TITLE Chemical Storage and Drainage	SUB AREA/SYSTEM -

PPG Industries Australia Pty. Ltd.

14 McNAUGHTON RD CLAYTON VIC 3168 PH (03) 92634942

DRG. No.	1	REV.	A3
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Figure 2



LEGEND

- SW x Storm Water Sampling Point
- DP x Discharge Point (Stack)
- DG Dangerous Goods Storage Location
- DG Dangerous Goods Store
- Industrial Waste Water Drainage
- Storm Water Drainage
- First Flush System
- Storm Water Easement
- 301A Building Names
- Grates

NOTES

- DG8 CLASS 9 PACKING GROUP 111
- DG3 CLASS 9 PACKING GROUP 111
- CLASS 8 PACKING GROUP 11
- DG6 CLASS

CONTRACTOR/VENDOR	VENDOR DRG No	-
	VENDOR JOB No	-
PROJECT NAME	-	

REV	REVISION DETAILS	DRN.	DRAFT ENGR	CHKD	APPROVED	DATE
2	NEW DRAWING NUMBER & UPDATE	TR	-	-	AP	2.8.18
1	-	-	-	-	-	-

CHECKED	SIGNATURES	REFERENCE DRAWINGS	DRG. No.
MECH/PRRC. ENGINEER	-	-	-
INST./ELEC. ENGINEER	-	-	-
APPROVED	-	-	-

THE RESPONSIBILITY TO VERIFY ALL DIMENSIONS ON SITE RESTS WITH THE CONTRACTOR

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DRAFTING CHECK	-
INST/ELEC ENG CHECK	-
APPROVED	-

SCALE: 1:1250 DISCIPLINE: -

DATE: 11.07.2018 DWG TYPE: -

SITE: 9 Birmingham Ave Willawood NSW -

TITLE: SITE DG Chemical Storage and Drainage

DRG. No: Figure 3

REV: 2

PPG PPG Industries Australia Pty. Ltd. 14 McNAUGHTON RD CLAYTON VIC 3168 PH (03) 92634942

AREA/SYSTEM: SUB AREA/SYSTEM

ANNEX B – RISK ASSESSMENT

Area:	Bulk Store x	Can Store x	Factory – General x	Specialty Making x	Specialty Filling x	MBM x
	Bulk Filling x	Maintenance x	Planning x	QC Lab x	R&D x	Warehouse x
Date:	01/08/18					
Risk Assessment Team Member:	Mike Allen – EHS Manager Natalie Maloney – ANZ Environmental Specialist ARC Environmental					
Background Information:	The Protection of the Environment Operations Act 1997 (POEO Act) and the Protection of the Environment Operations (General) Regulations 2009 require a risk assessment to be completed as part of the sites pollution incident response management plan.					
Describe who may be affected:	All site employees					

Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
Bulk dangerous goods stored on-site – Ammonia 23	Leak or spill of Ammonia 23 potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of incident increased by: Bunding failure; Tank failure; Poor maintenance of piping and hoses.	3	5	4	Location in CG6/DG2 – Southern end of the facility – Stormwater Pit to the west. Potential for end pathway to be the easement however stormwater flood gate can be closed to prevent off-site migration.	Piping and hoses are regularly inspected as part of the preventative maintenance program. Tank contained in a bunded area on hard stand. A spill kit station is located in the immediate area.	3	3	2

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
				4		Captured in the first flush system and subject to stormwater discharge procedure. Stormwater drainage network able to be closed with flood gate prior to migration off-site			2
Bulk dangerous goods stored on-site – Primal RHS - 884	Leak or spill of Primal RHS - 884 potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of incident increased by: Bunding failure; Tank failure; Poor maintenance of piping and hoses.	3	5	4	Located in Tank Farm #2 – Stormwater Pits to the south west – Potential for end pathway to be the easement however stormwater gated at main driveway.	Piping and hoses are regularly inspected as part of the preventative maintenance program. Tank contained in a bunded area on hard stand. Stormwater drainage network able to be closed with flood gate prior to migration off-site. Any runoff from this area is captured in the first flush system and subject to a specific dewatering procedure prior to release.	3	3	2
Bulk dangerous goods stored on-site –	Leak or spill of Acticide BW20 potentially contaminating land, surface water, groundwater and air and causing harm to human health and/or environment.	3	5	4	Stored in DG1 and DG3 - Bulk Store and Manufacturing Plant (Liquid Alley). Stormwater drains are located outside	Piping and hoses are regularly inspected as part of the preventative maintenance program. Tank contained in a bunded area on hard stand.	3	3	2

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
Acticide BW20	Likelihood of this incident would be increased by: A bunding failure; A tank failure; Poor maintenance of piping and hoses.			4	the building to the north and east. Multiple spill kits and hard stand mean that migration to stormwater, land or groundwater is unlikely.	Stormwater drainage network able to be closed with flood gate prior to migration off-site. Any runoff from this area is captured in the first flush system and subject to a specific dewatering procedure prior to release.			2
Bulk dangerous goods stored on-site – Teric N9	Leak or spill of Teric N9 potentially contaminating land, surface water, groundwater and air and causing harm to human health and/or environment. Likelihood of this incident would be increased by: A bunding failure; A tank failure; Poor maintenance of piping and hoses.	3	5	4	Stored in DG1 and DG3 - Bulk Store and Manufacturing Plant (Liquid Alley). Stormwater drains are located outside the building to the north and east. Multiple spill kits and hard stand mean that migration to stormwater, land or groundwater is unlikely.	Piping and hoses are regularly inspected as part of the preventative maintenance program. Tank contained in a bunded area. Stormwater drainage network able to be closed with flood gate prior to migration off-site. Any runoff from this area is captured in the first flush system and subject to a specific dewatering procedure prior to release.	3	3	2
Bulk dangerous goods stored	Leak or spill of Texanol potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment.	3	5	4	Located in Tank Farm #1 – Stormwater Pit to the east – Potential for end pathway to be the	Piping and hoses are regularly inspected as part of the preventative maintenance	2	3	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
on-site – Texanol	Likelihood of this incident would be increased by: A bunding failure; A tank failure; Poor maintenance of piping and hoses.				easement however stormwater gated at main driveway.	program. Tank contained in a bunded area on hard stand. Stormwater drainage network able to be closed with flood gate prior to migration off-site. Any runoff from this area is captured in the first flush system and subject to a specific dewatering procedure prior to release.			
Bulk dangerous goods stored on-site – Propylene Glycol	Leak or spill of Propylene Glycol potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: A bunding failure; A tank failure; Poor maintenance of piping and hoses.	3	5	4	Located in Tank Farm #1 – Stormwater Pit to the east – Potential for end pathway to be the easement however stormwater gated at main driveway.	Piping and hoses are regularly inspected as part of the preventative maintenance program. Tank contained in a bunded area on hard stand. Stormwater drainage network able to be closed with flood gate prior to migration off-site. Any runoff from this area is captured in the first flush system and subject to a specific dewatering procedure prior to release.	2	3	1
Bulk dangerous	Leak or spill of Diesel potentially contaminating land, surface water,	3	3	2	The diesel tank is located in CG9 - between the	Located under cover on hardstand in small tank within the	2	3	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
goods stored on-site – Diesel Tank	groundwater and air and causing harm to human health and/or environment. Likelihood of this incident would be increased by: Poor maintenance of hardstand; A tank failure; Poor maintenance of piping and hoses.				Contractors Work Shop and Main Fire Panel D. There is potential for spills to drain to stormwater outside the building and off-site to the north based on proximity to stormwater drains and drainage pathway, however considered unlikely given small quantity of diesel stored and on hard stand under cover.	maintenance shed. Break glass fire alarm located within the building.			
Bulk dangerous goods stored on-site – IBC or Drums – diesel and WD40	Leak or spill of finished product potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: Bunding failure; Overflow of banded pallets	2	5	3	The diesel drums are located in CG7 – Maintenance Shop. There is potential for spills to drain to stormwater outside the building and off-site to the north based on proximity to stormwater drains and	IBCs and drums are in good condition and stored in banded areas and/or on banded pallets. Diesel drums are inspected upon delivery to ensure they are in good condition. Drums are stored on a banded pallets under cover. This is a manual process, decanting is a manned process.	1	2	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
	from multiple drum failure.				drainage pathway, however considered unlikely given small quantity of diesel stored and on hard stand under cover.				
Bulk dangerous goods stored on-site – Finished Product	Leak or spill of finished product potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: Bunding failure; Overflow of banded pallets from multiple drum failure.	3	4	3	Located in Architectural Warehouse – Stormwater Pits in the north east and south east immediately adjacent to the warehouse. Potential for end pathway to be the easement however stormwater flood gate can be closed to prevent off-site migration.	3	3	2	
Bulk dangerous goods stored on-site - IBC or Drums - General	Leak or spill of finished product potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment.	2	4	2	Stored in Bulk Store and Manufacturing plant (Liquid Alley). Stormwater drains are located outside the building to the north and east. Multiple spill kits	1	2	1	

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
	Likelihood of this incident would be increased by: Bunding failure; Poor condition of IBCs or Drums; Overflow of banded pallets from multiple IBC/drum failure.			4	and hard stand mean that migration to stormwater, land or groundwater is unlikely.			1	
Used drums stored on-site.	Co – mingling of former chemicals and rain water and potentially contaminating land, surface water and groundwater. Likelihood of this incident would be increased by: Bunding failure; Dewatering without following procedure or undertaking testing.	3	5	4	Located in Empty Drum Bund – Main stormwater drain runs alongside bund, bund is not covered and allows rainwater to build up. If bund water builds up to point of overflow before dewatering occurs, the flood gate can be closed prior to runoff leaving site.	Drums are stored in a hardstand, banded area which is enclosed by a fence. Any dewatering of the banded area is subject to the bund dewatering procedure and is testing prior to disposal.	3	3	2
Used pots stored on-site.	Co – mingling of former chemicals and rain water potentially contaminating land, surface water and groundwater. Likelihood of this incident would be increased by: Storage of pots outside; Poor maintenance of hardstand;	3	5	4	Pots are located in the Manufacturing Plant. Stormwater drains are located outside the building to the north and east. Multiple spill kits and hard stand mean that	Stored on hardstand under cover in the manufacturing plant. Spill kits placed throughout the manufacturing plant.	3	1	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
	Removal of spill kits.			3	migration to stormwater, land or groundwater is unlikely.			1	
Bulk dangerous goods stored on-site – Bulk Powder	Uncontrolled air emissions (dust) causing harm to human health and/or environment. Likelihood of this incident would be increased by: Poor maintenance; Inadequate inspections of extraction systems and bags.	2	5	3	Stored in dry raw material store. Potential exists for an external uncontrolled emission if a bag was to break, the exposure pathway likely to be localised and would depend on the wind direction at the time.	Local dust extraction at source and bulk store banded. Raw materials are inspected upon delivery to ensure they are in good condition. Extraction systems are serviced regularly and inspected, and filters changed when required.	2	4	2
Small quantities dangerous goods stored on-site – Solvents, paints and aerosol paint cans	Leak or spill of small quantities of dangerous goods potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: Poor upkeep of hardstand storage areas; Removal of spill kits from storage area.	2	5	3	Located in R&D in Operations Building and White Knight Warehouse – Stormwater Pits in the south immediately adjacent to the buildings.	Storage containers are in good condition contained within buildings on hardstand. Spill kits placed throughout the buildings.	2	3	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
Bag House Dust	Uncontrolled air emissions (dust) causing harm to human health and/or environment. Likelihood of this incident would be increased by: Poor maintenance; Inadequate inspections of extraction systems and filters.	2	5	3	Stored in dry raw material store. Potential exists for an external uncontrolled emission if a bag was to break, the exposure pathway likely to be localised and would depend on the wind direction at the time.	Extraction systems are serviced regularly and inspected, and filters changed when required.	2	4	2
Product mixing and blending	Uncontrolled air emissions (VOCs, odour) causing harm to human health and/or environment. Likelihood of this incident would be increased by: Poor maintenance; Inadequate inspections of extraction systems and filters.	2	5	3	Stored in dry raw material store. Potential exists for an external uncontrolled emission, the exposure pathway likely to be localised and would depend on the wind direction at the time, however considered unlikely as VOC modelling based on engineering numbers indicates dispersion from stack is adequate.	Fume extraction. Extraction systems are serviced regularly and inspected, and filters changed when required. VOC modelling based on engineering numbers indicates active monitoring not required.	2	3	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
Contaminated Stormwater – Bunded Areas	Contaminated wastewater released to stormwater causing contamination to land, water and air causing harm to human health or environment. Likelihood of this incident would be increased by: Uncontrolled dewatering activities; Failure of the stormwater flood gate.	2	5	3	All bunded areas on site including tanks and lay down areas. Potential for end pathway to be the easement however stormwater flood gate can be closed to prevent off-site migration.	Dewatering procedure in place requiring a sample be taken, and water tested for contamination prior to release. Stormwater drainage network able to be closed with flood gate prior to migration off-site.	2	3	1
Hazardous Waste – Liquid Waste	Leak or spill of wastewater potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: Tank failure; Bund failure; Uncontrolled waste disposal and lack of waste tracking/ compliance program; Wastewater disposal undertaken by staff without adequate training.	1	3	1	Production Waste Water (not classified as hazardous) stored at Waste Water Tank at Tank Farm 2. R & D Waste Water collected in IBC. IBC stored at White Knight Warehouse.	Waste is collected by licenced EPA waste collection provider who must undergo PPG Environmental compliance audits. PPG waste management training for all personnel.	1	1	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
Bulk Storage of first flush system	Leak or spill of wastewater potentially contaminating land, surface water, groundwater and air and causing harm to human health or environment. Likelihood of this incident would be increased by: Failure of the stormwater flood gate; Uncontrolled dewatering activities; Overtopping of first flush system.	2	5	3	The first flush tank is located to the north west of Tank Farm #2 adjacent to a stormwater pit. Potential for end pathway to be the easement however stormwater flood gate can be closed to prevent off-site migration.	Stormwater flood gate to prevents overflow from first flush system from migrating site. 40,000L tank, at tank 20,000L a warning light is tripped. Procedure in place for dewatering before any release of first flush can occur.	2	3	1
Fire/ explosion – Equipment ignition source	Fire causing harm to human health. Likelihood of this incident would be increased by: Failure of fire fighting system; Ignition source brought to site by untrained employee.	1	4	1	Site wide.	Firefighting system, Employee training on fire prevention/ response and chemical handling. Site is a non-hazardous facility, no chemicals kept on-site that provide a chemical ignition source.	1	3	1
Fire/ explosion – Equipment ignition source	Fire causing harm to environment. Likelihood of this incident would be increased by: Failure of firefighting system; Ignition source brought to site by untrained employee;	1	4	1	Site wide.	Firefighting system, Employee training on fire prevention/ response and chemical handling. Site is a non-hazardous facility, no chemicals kept on-site that provide a chemical ignition source. Spill kits available to	1	3	1

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Potential Hazards	Potential Pollution Incident(s)	Risk rating before controls			Potential Exposure Pathway (closest stormwater access, unsealed area).	Existing Risk Controls	Risk rating with existing controls		
		S	L	R			S	L	R
	No spill kits or training to assist in prevention of fire water reaching stormwater drainage system; Failure of stormwater flood gate.					prevent fire water reaching stormwater. Stormwater flood gate to prevents stormwater leaving site.			

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RISK ASSESSMENT MATRIX

Severity	1 Low Severity	2 Medium	3 Serious	4 Major	5 Catastrophic
Health Onsite People	1 Medical Treatment (Gov't Reportable) or multiple First Aid	1 Lost Time or multiple Med Treatments (Gov't Reportable)	1 Permanent Disability or Multiple Lost Time (PPG I&I w/ disability)	1 fatality or multiple permanent disability cases	Multiple fatalities
Health Offsite People	No injury or health impact	Exposure with no medical treatment; possible complaints	1 non-permanent injury or exposure requiring hospital visit; possible citizen shelter-in-place order	1 permanent disability; or multiple non-permanent injuries or exposure requiring hospitalization >24 hours; or possible public evacuations	1 fatality or multiple permanent injuries
Environment Onsite	PPG Reportable Spill	Government Reportable Spill	Large spill or spill requiring remediation	Spill requiring significant remediation or total evacuation / shutdown	Irreversible severe damage
Environment Offsite	No offsite impact	Off-site odour; small spill with no long-term clean-up	Spill requiring minor remediation or personnel evacuation	Limited area with prolonged clean up or long-term damage	Catastrophic or extensive impact far beyond the facility boundary or prolonged clean-up of extensive area offsite

Likelihood				
1 Highly Improbable	2 Improbable (possible but have not heard of in industry)	3 Rare (Once within the operating life of 10 similar units)	4 Occasional (Within the operating life of this unit)	5 Probable (More than once in the operating life of this unit)

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5 Probable (More than once in the operating life of this unit)	2	3	4	4	4
4 Occasional (Within the operating life of this unit)	1	2	3	4	4
3 Rare (Once within the operating life of 10 similar units)	1	1	2	3	4
2 Improbable (possible but have not heard of in industry)	1	1	1	2	3
1 Highly Improbable	1	1	1	1	2
	1 Low Severity	2 Medium	3 Serious	4 Major	5 Catastrophic

Rank	Action Level	To Management Levels:	Within:	Resolve	Complete
4	Immediate Action	Plant Manager & EHS Manager	1 week from detection	< 30 days	< 12 months
3	Mitigation Recommended	EHS Manager	30 days from detection	< 4 months	< 24 months
2	Confirm safeguards; Recommendations Optional	Department Head	45 days	< 6 months	< 24 months
1	No action required	-			

For items in the red zone (Risk Rank 4), the facility shall implement temporary measures necessary to safely permit continued operation until permanent mitigation is completed.

Communicate: Communicate risk level to Management Level designated.

Resolve: Develop plans and obtain approval for permanent mitigation measures from designated Management Level. Temporary actions, if required, are in place.

Complete: Implement mitigation measures. Verify mitigation is implemented as planned and is operational

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Spill Response – General

ACTION	SUMMARY
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. If immediate danger of fire / explosion trigger by pressing a break glass. Ensure safety of all staff by evacuating staff from area/s, as necessary.
PERSONAL SAFETY	ERS to rescue staff and ensure area clear (wear PPE as directed by relevant MSDS (Annex D) or as needed) Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash.
CONTAIN EMISSION	TAKE IMMEDIATE STEPS TO PREVENT FURTHER spills, shut down equipment, wet down etc., to prevent emissions from spreading or migrating off-site.
MAKE SAFE	Turn off any equipment that may make the situation worse – such as ignite a flammable chemical emission. Barricade the area.
COMMUNICATE INFORMATION	Alert: Shift Supervisor, CW / DCW, security, reception Report the spill (depending on severity): Operations Manager, EHS and Other Production Teams as needed. Obtain MSDS for substance/s
ERS	Confirm via radio the incident details with the CW / Security. If required and not already done - alert the Emergency Services. The fire brigade must be called for significant dangerous goods spills. The ERS for the affected area will delegate duties. ERS will be under the control of emergency services on their arrival. Do not hurry if no immediate danger. Discuss and decide on the safest course of action that prevents spreading the spill or causing injuries. Consult as required (e.g. EHS / R&D)
NOTIFICATION TO AUTHORITIES (Only if spill deemed of significant quantity or locality to migrate off-site)	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed</i> : <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the Appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities <i>(Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.)</i> Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
PUBLISHING MONITORING DATA AND MEDIA	Monitoring data is to be made available for public access. Only the site manager or delegate is authorised to speak to the media on the company's behalf. Determine if the event meets the criteria of a PPG reportable incident. Utilise PPG critical incident group if required (24/7).

CLEAN UP / ALL-CLEAR	Proceed with clean-up to restore environment Call Emergency spill clean-up services if necessary (see contact list). All clear is given by the Fire Brigade or CW
REVIEW	Conduct investigation as per procedure EHS-VIL-09-001 Draft Incident Report & submit to appropriate regulatory agencies (if required) Review PIRMP for accuracy, currency and suitability – make any changes if required.

Spill Response – Acticide BW20

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ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	<p>Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953.</p> <p>Trigger fire alarm by pressing a break glass if full evacuation required.</p> <p>Call 000 for Fire Brigade and possibly Ambulance.</p> <p>Advice for firefighters - Wear self-contained breathing apparatus.</p> <p>Inform authorities in case of contamination of water or sewage system.</p>
PERSONAL SAFETY	<p>Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash.</p> <p>Ensure safety of all staff by evacuating staff from area/s, as necessary.</p> <p>ERS to wear any required PPE.</p> <p>Under certain fire conditions, traces of toxic gases cannot be excluded, e.g.:</p> <p>Nitrogen oxides (NOx)</p> <p>Carbon monoxide (CO)</p> <p>Sulphur dioxide (SO₂)</p>
NOTIFICATION TO AUTHORITIES	<p>If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed</i>:</p> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the Appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW <p>The following information is required when providing notification to the authorities:</p> <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities <p><i>(Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.)</i></p> <p>Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services.</p> <p>Additional notification as directed by Regulatory authority or emergency services.</p>
FIRST AID	<p>Ambulance attendance may be required – call 000.</p> <p>Triage affected employees remotely from any possible spread of the spill. Give them fresh air. Artificial respiration / Oxygen may be required.</p>
CONTAIN SPILL	<p>Approach spill from upwind, wearing appropriate PPE. Ventilate area of leak or spill. Isolate area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible.</p> <p>As the product is hazardous for the aquatic environment, it must be prevented from reaching surface water.</p> <p>Prevent from spreading (e. g. by enclosing with a ring of chemical absorbent).</p> <p>Collect large amounts in suitable container. Cover the rest with absorbent, mix intensively and collect mechanically. Suitable binder: multi-purpose absorbent.</p> <p><u>Consider calling Solveco if spill clean-up is required: (Contact: 98337035)</u></p>

NEIGHBOURS	For large spills where the product may have entered the stormwater network with the potential to spread rapidly – immediately contact neighbours and alert them to possible need for emergency management. Follow all advice of fire brigade on arrival.
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Potential Health Effects:

- Causes skin irritation.
- Causes serious eye damage.
- May cause an allergic skin reaction.
- Very toxic to aquatic life with long lasting effects.

First Aid Information:

- General information Personal protection for the First Aider.
- After inhalation Supply fresh air; consult doctor in case of symptoms.
- After skin contact
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If skin irritation occurs, get medical attention.
- After eye contact
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Call a doctor immediately.
- IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- Most important symptoms and effects, both acute and delayed Allergic skin reactions.
- Information for doctor Probable mucosal damage may contraindicate the use of gastric lavage.
- Indication of any immediate medical attention and special treatment needed
- Treat skin and mucous membrane with antihistamine and corticoid preparations.
- Rinse eyes thoroughly with physiological saline.

Spill Response – Ammonia

ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. Trigger fire alarm by pressing a break glass if full evacuation required. Call 000 for Fire Brigade and possibly Ambulance.
PERSONAL SAFETY	Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash. Ensure safety of all staff by evacuating staff from area/s, as necessary. ERS to wear any required PPE.
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Fire and Rescue NSW • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities <i>(Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.)</i> Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
FIRST AID	Ambulance attendance may be required – call 000. Triage affected employees remotely from any possible spread of the gas plume. Give them fresh air. Artificial respiration / Oxygen may be required.
CONTAIN SPILL	DO NOT APPROACH SPILL UNTIL EMERGENCY SERVICES HAVE ALLOW RE-ENTRY TO AREA. Approach spill from upwind, wearing appropriate PPE. Ventilate area of leak or spill. Isolate area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Absorb small spills with sand (inert). ERS team can clean up small spills. <u>Call 000 Emergency services to clean up the big spills.</u>
NEIGHBOURS	For large spills where the gas plume can spread rapidly – immediately contact neighbours and alert them to possible need for evacuation. Follow all advice of fire brigade on arrival.

Potential Health Effects:

Ammonia is very alkaline and reacts corrosively with all body tissues.

Inhalation: Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Inhalation may be fatal as a result of spasm

inflammation and oedema of the larynx and bronchi, chemical pneumonitis and pulmonary oedema.

Ingestion: Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, leading to death. Can cause sore throat, vomiting, diarrhoea.

Skin Contact: Dermal contact with alkaline corrosives may produce pain, redness, severe irritation or full thickness burns. May be absorbed through the skin with possible systemic effects.

Eye Contact: Corrosive. Can cause blurred vision, redness, pain, severe tissue burns and eye damage. Eye exposure may result in temporary or permanent blindness.

Chronic Exposure: Prolonged or repeated skin exposure may cause dermatitis. Prolonged or repeated exposure may cause eye, liver, kidney, or lung damage.

First Aid Information:

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Spill Response – Primal RHS - 884

ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. Trigger fire alarm by pressing a break glass if full evacuation required. Call 000 for Fire Brigade and possibly Ambulance.
PERSONAL SAFETY	Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash. Ensure safety of all staff by evacuating staff from area/s, as necessary. ERS to wear any required PPE.
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities (Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.) Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
FIRST AID	Ambulance attendance may be required – call 000. Triage affected employees remotely from any possible spread of the spill. Give them fresh air.
CONTAIN SPILL	Approach spill, wearing appropriate PPE. Ventilate area of leak or spill. Isolate area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. <u>Consider calling Solveco if spill clean-up is required:</u> (Contact: 98337035)
NEIGHBOURS	For large spills where the gas plume can spread rapidly – immediately contact neighbours and alert them to possible need for evacuation. Follow all advice of fire brigade on arrival.

Potential Health Effects:

Skin corrosion/irritation

May cause transient irritation.

Serious eye damage/eye irritation

No eye irritation

First Aid Information:

Inhalation: Move to fresh air.

Skin contact: Wash with water and soap as a precaution. If skin irritation persists, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Notes to physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Spill Response – Teric N9

ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. Trigger fire alarm by pressing a break glass if full evacuation required. Call 000 for Fire Brigade and possibly Ambulance.
PERSONAL SAFETY	Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash. Ensure safety of all staff by evacuating staff from area/s, as necessary. ERS to wear any required PPE.
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities <i>(Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.)</i> Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
FIRST AID	Ambulance attendance may be required – call 000. Triage affected employees remotely from any possible spread of the spill. Give them fresh air.
CONTAIN SPILL	Approach spill, wearing appropriate PPE (as per msds). Ventilate area of leak or spill. Isolate area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Do not allow run-off from fire fighting to enter drains or water courses. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust) <u>Consider calling Solveco if spill clean-up is required:</u> (Contact: 98337035)
NEIGHBOURS	For large spills where the gas plume can spread rapidly – immediately contact neighbours and alert them to possible need for evacuation. Follow all advice of fire brigade on arrival.

Potential Health Effects:

Harmful if swallowed.
Causes serious eye damage.
Toxic to aquatic life with long lasting effects.

First Aid Information:

General advice:

Move out of dangerous area.

Consult a physician.

Show the material safety data sheet to the doctor in attendance (Annex D).

Do not leave the victim unattended.

If inhaled:

If unconscious place in recovery position and seek medical advice.

If symptoms persist, call a physician.

In case of skin contact:

If skin irritation persists, call a physician.

If on skin, rinse well with water.

If on clothes, remove clothes.

In case of eye contact:

Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Continue rinsing eyes during transport to hospital.

Remove contact lenses.

Protect unharmed eye.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed:

Keep respiratory tract clear.

Do NOT induce vomiting.

Do not give milk or alcoholic beverages.

Never give anything by mouth to an unconscious person.

If symptoms persist, call a physician.

Spill Response –Propylene Glycol

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ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. Trigger fire alarm by pressing a break glass if full evacuation required. Call 000 for Fire Brigade and possibly Ambulance.
PERSONAL SAFETY	Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash. Ensure safety of all staff by evacuating staff from area/s, as necessary. ERS to wear any required PPE. General: Approved respiratory protection, safety glasses, gloves, rubber boots and clothing protection to minimize skin contact. Clothing: Gloves, coveralls, apron, boots as necessary to prevent skin contact. Eyes: Chemical goggles; also wear a face shield if splashing hazard exists. Respiration: Approved organic vapor mist respirator as necessary. Ventilation: Use local exhaust to control vapors/mists.
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities <i>(Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.)</i> Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
FIRST AID	Ambulance attendance may be required – call 000. Triage affected employees remotely from any possible spread of the spill. Give them fresh air.
CONTAIN SPILL	Use the appropriate personal protective equipment. Narrow access to the affected area and eliminate ignition sources. Ventilate the area and prevent the material from entering sewers, streams or aquifers. Eliminate or reduce leak if without risk. For large amounts pump the material into a suitable container, absorb remainder with an inert material and set it according to current regulations. Use Inert material to contain the flight or spills (sand, vermiculita, etc.). <u>Consider calling Solveco if spill clean-up is required:</u> (Contact: 98337035)
NEIGHBOURS	For large spills where the product can spread rapidly – immediately contact relevant neighbours and alert them to possible need for evacuation or spill management. Follow all advice of fire brigade on arrival.

Potential Health Effects:

Primary Routes of Exposure: Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.

DERMAL: In the skin it causes irritation to the repeated or prolonged contact.

INGESTION: It can cause damage to the digestive system

INHALATION: It does not happen to room temperature and under normal conditions of use. Due to the physical properties of the material, the presence of steam to room temperature is minimum.

One does not hope that effects to the health by the exhibition to steam generated to room temperature exist. Nevertheless it can be disturbed to high temperatures, generating steam that can be irritating.

EYES: It can cause temporary irritation.

First Aid Information:

If possible, place the affected person in a position comfortable and comforting, avoid you lower your body temperature. Get immediate medical attention. All first aid procedures should be reviewed periodically the doctor familiar with the chemical and conditions of use.

First Aid Procedures - Ingestion:

If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

First Aid Procedures - Inhalation:

Move to fresh air. Aid in breathing, if necessary. Get immediate medical attention.

First Aid Procedures - Skin:

Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Get immediate medical attention.

First Aid Procedures - Eyes:

Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.

Spill Response – Texanol (NX 795)

ACTION	SUMMARY
TREAT AS FOR OTHER GENERAL SPILLS (SEE ABOVE), EXCEPT:	
RAISE ALARM	Alert ERS to the situation – locate ERS member or phone 1111 or to security at 02 97257953 or 0428609 953. Trigger fire alarm by pressing a break glass if full evacuation required. Call 000 for Fire Brigade and possibly Ambulance.
PERSONAL SAFETY	Immediately treat any exposed staff, e.g. Safety Shower, Eye Wash. Ensure safety of all staff by evacuating staff from area/s, as necessary. Special hazards arising from the substance or mixture In case of fire, the following can be released: Carbon monoxide (CO) Carbon dioxide (CO ₂) Advice for firefighters Protective equipment: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities (Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.) Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
FIRST AID	Ambulance attendance may be required – call 000. Triage affected employees remotely from any possible spread of the spill. Give them fresh air.
CONTAIN SPILL	Approach spill, wearing appropriate PPE (as per msds). Ventilate area of leak or spill. Isolate area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Do not allow run-off from firefighting to enter drains or water courses. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust) <u>Consider calling Solveco if spill clean-up is required:</u> (Contact: 98337035)
NEIGHBOURS	For large spills where the gas plume can spread rapidly – immediately contact neighbours and alert them to possible need for evacuation. Follow all advice of fire brigade on arrival.

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Potential Health Effects:

Hazard description: The product may cause slight irritation on repeated or prolonged skin contact.

First Aid Information:

After inhalation: First aid measures not required but get fresh air for personal comfort.

After skin contact: Exposed skin should be washed to prevent irritation caused by prolonged skin contact.

After eye contact: Rinse opened eye under running water.

After swallowing: If a large quantity has been ingested or you feel unwell, get medical advice/attention

Air Emission Response – Dust/Odour/VOCs

ACTION	SUMMARY
RAISE ALARM	Evacuate the area, as required Call local fire brigade or 000
PERSONAL SAFETY	ERS to rescue staff and ensure area clear (wear PPE as needed) Immediately treat any exposed staff, e.g. Eye Wash.
CONTAIN EMISSION	TAKE IMMEDIATE STEPS TO PREVENT FURTHER EMISSIONS, if appropriate cover material, turn off equipment/plant, to prevent dust/odour/VOC from migrating further.
MAKE SAFE	Turn off any equipment that may make the situation worse – such as ignite a flammable chemical spill. Barricade the area.
COMMUNICATE INFORMATION	Alert: Shift Supervisor, CW / DCW, security, reception Report the spill (depending on severity): Operations Manager, EHS and Other Production Teams as needed. Obtain MSDS for substance/s Note wind direction at the time and for the duration of the uncontrolled release.
ERS	ERS to contain spill as far as possible / close easement spill gates All equipment contributing to the spill must be shut off immediately if safe to do so. Security to keep driveway clear for emergency services Provide MSDS, volume, etc to fire brigade on arrival Fully cooperate with and assist emergency services or regulatory bodies upon their arrival Do not hurry if no immediate danger. Discuss and decide on the safest course of action that prevents spreading the spill or causing injuries. Consult as required (e.g. EHS / R&D)
NOTIFICATION TO AUTHORITIES	If the spill has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately in order as listed:</i> <ul style="list-style-type: none"> • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW • Fire and Rescue NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities (Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.) Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
PUBLISHING MONITORING DATA AND MEDIA	Monitoring data is to be made available for public access. Only the site manager or delegate is authorised to speak to the media on the company's behalf. Determine if the event meets the criteria of a PPG reportable incident. Utilise PPG critical incident group if required (24/7).
CLEAN UP / ALL-CLEAR	Proceed with clean-up to restore environment Call Emergency spill clean-up services if necessary (see contact list). All clear is given by the Fire Brigade or CW
REVIEW	Conduct investigation as per procedure EHS-VIL-09-001 Draft Incident Report & submit to appropriate regulatory agencies (if required) Review PIRMP for accuracy, currency and suitability – make any changes if required.

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Fire Incident Response

ACTION	SUMMARY
SOUND ALARM	Activate nearest press glass near you, etc
ATTACK FIRE	If safe to do so, attack the fire using first response techniques (extinguishers, fire blanket, hose reels)
MAKE SAFE	Turn off any equipment that may become dangerous if left unattended. Close containers of flammable substances, etc. This is intended to prevent aggravation of any existing situation or creating secondary incidents
EVACUATE	This must be simultaneous with fighting the fire. Do NOT wait for instructions, evacuate immediately to the front car park Wardens are to clear areas Security to gather the contractor/driver sign in records AND the visitor book (from reception)
ASSEMBLE	At your area assembly point in the front car park Wardens to conduct roll calls at the Evacuation Points in the car park. Security to conduct roll call of visitors / contractors / drivers ERS and CW to be advised of any missing persons. Security to maintain driveway access to the site and prevent non-emergency vehicles from entering or leaving CW / DCW to advise emergency services of nature and location of incident, ERS to assist with connection to fire services, etc.
ERS	Identify the area affected. If safe to do so - attack the fire. Confirm via radio the incident details with the CW / Security If not already done - alert the Emergency Services. The ERS for the affected area will delegate duties ERS will be under the control of emergency services on their arrival.
FIRST AID	First aiders are to set up a first aid station in the main car park and treat any injured employees. They must liaise with the CW and ERS.
NEIGHBOURS / AUTHORITIES / MEDIA / PPG	If the fire has the potential to harm the environment; the EHS Manager to contact the following authorities <i>immediately</i> in order as listed: <ul style="list-style-type: none"> • Fire and Rescue NSW • Environment Protection Authority (EPA – 131 555) whoever is the appropriate • Bankstown Council • SafeWork NSW The following information is required when providing notification to the authorities: <ul style="list-style-type: none"> • Time, date and location of the incident • Nature of the incident – i.e. the estimated quantity and volume and concentration of pollutants (if known) • Circumstances of incident (include the cause if known) • Action taken or proposed to be taken to manage incident • Other information prescribed by the authorities (Note: If any of the above information is not known at the time of notification, it must be made available immediately once it becomes known.) Neighbours/public need only be contacted / evacuated if there is a threat of the spill affecting them or if this is determined by emergency services. Additional notification as directed by Regulatory authority or emergency services.
ALL CLEAR	When advised by emergency services that it is safe to re-enter buildings, the CW shall advise ERS and Wardens. ERS will give three short sirens to indicate the all clear.

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Version number 43

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Hazardous according to criteria of Safe Work Australia. Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001.

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name: ACTICIDE BW 20****Proper shipping name:**

The Proper Shipping Name is indicated in section 14 of this safety data sheet.
This product is classified as non dangerous for transport.

1.2 Relevant identified uses of the substance or mixture and uses advised against**Application of the substance / the mixture** Biocidal product for industrial use.**Uses advised against:** Applications at which aerosols (mist) might arise.**1.3 Details of the supplier of the safety data sheet****Address and telephone number of the supplier:**

Thor Specialties Pty Ltd

67 Newton Road

Wetherill Park

P.O. Box 3124

New South Wales 2164

Australia

Phone: (AUS) +61 2 9725 1177

Fax : (AUS) +61 2 9725 5677

ABN: 66 001 558 032

Thor Specialties Pty Ltd

15 Kalmia Street

Eilerslie

Auckland 5

New Zealand

Phone: (NZ) + 64 9 579 5037

Fax: (NZ) + 64 9 579 4673

Competent person responsible for the Material Safety Data Sheet:

Biocide Department (AUS):

Phone: (AUS) +61 2 9725 1177

Fax : (AUS) +61 2 9725 5677

E-Mail: technical1@thorchem.com.au

Product safety: Kevin Roden, kevinr@thorchem.com.au

Biocide Department (NZ):

Phone: (NZ) + 64 9 579 5037

Fax: (NZ) + 64 9 579 4673

E-Mail: thor.nz@xtra.co.nz

1.4 Emergency telephone number:

Emergency phone number (24 hour service): 1300 959 267 for Australia and 0508 THORSPEC (0508 84677732) for New Zealand. EMERGENCY ONLY

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

corrosion

Eye Dam. 1 H318 Causes serious eye damage.



environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

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Skin Irrit. 2 H315 Causes skin irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R38-41: Irritating to skin. Risk of serious damage to eyes.



Xi; Sensitising

R43: May cause sensitisation by skin contact.



N; Dangerous for the environment

R50: Very toxic to aquatic organisms.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is labelled according to the CLP regulation.

· **Hazard pictograms**



GHS05 GHS07 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**

1,2-benzisothiazol-3(2H)-one

· **Hazard statements**

H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H317 May cause an allergic skin reaction.
 H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P391 Collect spillage.

· **Information pertaining to particular dangers for man and environment**

· **Safety Phrases:** S-Phrases are listed in section 15.

· **2.3 Other hazards** Other hazards have not been identified for this product.

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


Trade name: ACTICIDE BW 20

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SECTION 3: Composition/information on ingredients

- **3.2 mixtures**
- **Description:** Preservative based on isothiazolones.

- **Dangerous components:**

CAS: 2634-33-5 Index number: 613-088-00-6	1,2-benzisothiazol-3(2H)-one  T R23;  Xn R22;  Xi R38-41;  Xi R43;  N R50 -----  Acute Tox. 2, H330;  Eye Dam. 1, H318;  Aquatic Acute 1, H400; Aquatic Chronic 2, H411;  Acute Tox. 4, H302; Skin Irrit. 2, H315; Skin Sens. 1, H317	19.5 - 20.5%
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- **Additional information** For the wording of the listed risk/hazard phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information** Personal protection for the First Aider.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact**
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs, get medical attention.
- **After eye contact**
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a doctor immediately.
- **After swallowing**
IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- **4.2 Most important symptoms and effects, both acute and delayed** Allergic skin reactions.
- **Information for doctor** Probable mucosal damage may contraindicate the use of gastric lavage.
- **4.3 Indication of any immediate medical attention and special treatment needed**
Treat skin and mucous membrane with antihistamine and corticoid preparations.
Rinse eyes thoroughly with physiological saline.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Water spray jet, extinguishing powder, CO₂, foam.
- **Unsuitable extinguishing agents for reasons of safety:** None
- **Hazchem Code:** 2X
- **5.2 Special hazards arising from the substance or mixture**
Under certain fire conditions, traces of toxic gases cannot be excluded, e.g.:
Nitrogen oxides (NO_x)
Carbon monoxide (CO)
Sulphur dioxide (SO₂)
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

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- **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective clothing (see item 8).

Keep unprotected persons away.

When selecting the protective suit attention has to be paid to the complete and safe protection of skin and mucous membranes. Impermeable protective clothes, protective boots made of neoprene, complete face protection and nitrile-rubber-gloves with long tops should be worn.

- **6.2 Environmental precautions:**

As the product is hazardous for the aquatic environment, it must be prevented from reaching surface water.

Prevent from spreading (e. g. by enclosing with a ring of chemical absorbent).

Inform authorities in case of contamination of water or sewage system.

- **6.3 Methods and material for containment and cleaning up:**

Collect large amounts in suitable container. Cover the rest with absorbent, mix intensively and collect mechanically.

Suitable binder: multi-purpose absorbent.

Dispose of contaminated material as waste according to item 13.

- **6.4 Reference to other sections** None.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**

Ensure good exhaust ventilation at the workplace.

It is preferable to handle the product in a closed system.

Avoid air pollution at the workplace e.g. aerosol formation or product heating.

Load carefully, avoid splashes.

Risks to the safety and health of workers may not only be created by work involving chemicals but, inter alia by work equipment and the fitting-out of work-places. Those risks shall be identified and evaluated.

- **Information about protection against explosion and fire:** No special measures required.

- **7.2 Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and containers:**

Keep containers tightly sealed.

Information about suitable materials for vessels and piping can be requested from our sales department Tel.: +44(0)1606 818800.

- **Information about storage in a common storage facility:** Store away from foodstuffs.

- **Further information about storage conditions:**

Prevent release to the environment by adequate secondary containment design and use of appropriate spill control procedures.

- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**

- **Components with critical values that require monitoring at the workplace:** None established.

- **Additional information:** Information valid at the time of review of safety data sheet.

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Trade name: **ACTICIDE BW 20**

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- **8.2 Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures:**
Use skin cream for skin protection.
Avoid contact with the eyes and the skin.
Wash hands during work breaks and at the end of the shift.
Provide skin protection plan.
- **Respiratory protection:** Not necessary if room is well ventilated.
- **Protection of hands:**



Chemical protective gloves according to DIN EN 374 with CE-labelling.

Check the condition of protective gloves after each use for any damages like holes, cuts or tears.
Do not wear protective gloves longer than necessary.
After use of gloves apply skin-cleaning agents and skin cosmetics.

- **Material of gloves:** Nitrile rubber, NBR
- **Penetration time of glove material:**
Thickness: 0.4 mm; break-through time: 480 min; material: Nitrile; permeation: level 6
- **Gloves made of the following materials are not suitable:**
Gloves for mechanical protection do not provide protection against chemicals.
- **Eye protection:**



Safety goggles with CE label.

A device for rinsing eyes must be available at the work place.

- **Body protection:**



Protective clothing.

- **Risk management measures**
The operators shall be instructed adequately.
The workplace shall be inspected regularly by competent personnel e.g. the safety representative.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
 - **Form:** Dispersion
 - **Colour:** Beige
 - **Odour:** Mild
 - **Odour threshold:** Not relevant for safety
 - **pH-value at 20 °C:** 6 - 8
- **Change in condition**
 - **Melting point/Melting range:** Not applicable.
 - **Boiling point/Boiling range:** ca. 100 °C (H₂O)
 - **Flash point:** Not applicable.
 - **Self-inflammability:** Product is not self-igniting.
 - **Danger of explosion:** Product is not explosive.

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- **Vapour pressure at 20 °C:** 0.0000037 mbar (a.i.)
- **Density at 20 °C** 1.04 - 1.10 g/cm³
- **Solubility in / Miscibility with Water:** Dispersible
- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
Up to now, no dangers resulting from a reactivity of the mixture have been identified.
- **10.2 Chemical stability**
- **Conditions to be avoided:**
Before handling, the product should not be diluted or mixed with other chemicals, in order to avoid any negative influences on the ingredient(s).
- **Minimum shelf life:** 24 months from production date, if stored at a temperature of about 20 °C
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
None, if storage and handling is done according to specification.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

Oral	ATE mix	> 2000 mg/kg (calculated)
Dermal	ATE mix	> 5000 mg/kg (calculated)
Inhalation	ATE mix dust/mist	2 mg/l, 4h (calculated)

- **Evaluation:**
The LC50 resp. ATE value for the exposure route 'inhalation' is not considered at the classification because no dust/mist can arise physically at intended use or at reasonable foreseeable misuse.

- **Primary irritant effect:**

- **on the skin:**

Causes skin irritation (Assessment outlined in Annex I, CLP 1272/2008/EC).

2634-33-5 1,2-benzisothiazol-3(2H)-one

Dermal	OECD 404 (skin)	(rabbit) (OECD 404) slightly irritant, S 2219
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- **on the eye:**

Causes serious eye damage (Assessment outlined in Annex I, CLP 1272/2008/EC).

2634-33-5 1,2-benzisothiazol-3(2H)-one

Irritation of eyes	OECD 405 (eye)	(rabbit) (OECD 405) severe irritant, S 2196
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- **Sensitisation:**

Sensitization possible by skin contact.

2634-33-5 1,2-benzisothiazol-3(2H)-one

Sensitisation	OECD 406 (MKA)	sensitising (Guinea pig) (OECD 406) S 2220
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- **Specific target organ toxicity (STOT):**
Based on the available data the classification criteria for hazard classes STOT SE and STOT RE are not fulfilled.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):**
This mixture is not considered to be "CMR" based on results of tests with the ingredients.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

EC50 / 48 h	16.4 mg/l (Daphnia) (OECD 202) bridging from CAR data
EC50 / 72 h	0.6 mg/l (Pseudokirchneriella subcapitata) (OECD 201) bridging from S 2238
LC50 / 96 h	8 mg/l (rainbow trout) (OECD 203) bridging from S 2746

2634-33-5 1,2-benzisothiazol-3(2H)-one

EC10 / 72 h	0.04 mg/l (Pseudokirchneriella subcapitata) (OECD 2001) S 2238
NOEC	0.21 mg/l (rainbow trout) (OECD 215) S 805
NOEC / 21 d	1.2 mg/l (Daphnia) (OECD 211) S 803

- **Evaluation:**
Very toxic to aquatic life.
Harmful to aquatic life with long lasting effects.
- **Evaluation:** Depending on concentration, toxic effects on activated sludge organisms are possible.

12.2 Persistence and degradability

Degree of elimination:

Biodegradability:

- **Evaluation:** The component(s) is (are) rapidly biodegradable.
- **Evaluation:** The substance is biodegradable in activated sludge units.

12.3 Bioaccumulative potential

BCF / LogKow:

2634-33-5 1,2-benzisothiazol-3(2H)-one	
OECD 117 Log Kow (HPLC method)	0.7 (n-Octanol/water) (OECD 117) S 324
OECD 305 Biokonzentrationsfaktor BCF	6.95 BCF (Fish) (OECD 305) S 2243

- **Evaluation:** Not worth-mentioning accumulating in organisms
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** This mixture does not contain substances that meet the PBT-criteria of REACH, annex XIII.
- **vPvB:** This mixture does not contain substances that meet the vPvB-criteria of REACH, annex XIII.
- **12.6 Other adverse effects** Any other adverse effects on the environment are not expected.
- **12.7 Additional information**
- **Heavy metals and their compounds according Directive 2006/11/EC:** None

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- **Adsorbable organic halogen compounds (AOX - DIN EN ISO 9562):**
The product does not contain substances, which can influence the AOX of waste water.

SECTION 13: Disposal considerations



- **13.1 Waste treatment methods**
- **Recommendation** Must be specially treated under adherence to official regulations.

· European waste catalogue

16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 03 00	off-specification batches and unused products
16 03 05*	Organic wastes containing dangerous substances

- **Contaminated packaging:**
- **Recommendation:** Remove all product from packaging and clean thoroughly before recycling.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

- **14.1 UN-Number**
- **ADG, IMDG, IATA** UN3082
- **14.2 UN proper shipping name**
- **ADG** 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2-benzisothiazol-3(2H)-one)
- **IMDG** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2-benzisothiazol-3(2H)-one), MARINE POLLUTANT
- **IATA** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2-benzisothiazol-3(2H)-one)
- **14.3 Transport hazard class(es)**
- **ADG**
- 
- **Class** 9 (M6) Miscellaneous dangerous substances and articles.
- **Label** 9
- **IMDG, IATA**
- 
- **Class** 9 Miscellaneous dangerous substances and articles.
- **Label** 9
- **14.4 Packing group**
- **ADG, IMDG, IATA** III

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<ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADG): · Special marking (IATA): · 14.6 Special precautions for user · EMS Number: · 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code · Transport/Additional information: 	<p>Yes Symbol (fish and tree)</p> <p>Symbol (fish and tree) Symbol (fish and tree)</p> <p>Warning: Miscellaneous dangerous substances and articles. F-A,S-F</p> <p>Not applicable.</p> <p>Single packagings and combination packagings containing inner packagings with contents of 5 l or less for liquids, or contents of 5 kg or less for solids need not be marked with the environmentally hazardous substance mark (fish and tree).</p>
<ul style="list-style-type: none"> · ADG · Limited quantities (LQ) · Excepted quantities (EQ) · Transport category · Tunnel restriction code · Remarks: 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p> <p>3 E Hazchem Code: 2X</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml</p>
<ul style="list-style-type: none"> · IATA · Remarks: · UN "Model Regulation": 	<p>Packing Instructions / max. net weight: Passenger aircraft: 964 / 450 L; Cargo Aircraft: 964 / 450 L UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2-benzisothiazol-3(2H)-one), 9, III</p>

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Australian Inventory of Chemical Substances (AICS):
All ingredients are listed.

Standard for the Uniform Scheduling of Medicines and Poisons
7789-38-0 sodium bromate
S6

- **Information about limitation of use:**

- **Australian Poisons Schedule:** Not scheduled.
- **New Zealand HSNO Code:** 6.1D, 6.5B, 8.2C, 8.3A, 9.1A
- **Australian Inventory of Chemical Substances (AICS):** All ingredients are listed in the AICS.

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- **Indication of VOC:**
- **VOC according to Directive 1999/13/EC:**
This product does not contain any relevant amounts of "Volatile Organic Compounds" (VOC).
- **VOC according to Decopaint Directive (2004/42/EC):**
The product does not contribute significantly to the total content of VOCs in paints and varnishes.
- **SVOC according to EU-Ecolabel for interior and exterior paints (2014/312/EU):**
This product does not contain any Semi Volatile Organic Compounds in the definition of the 2014/312/EU.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This data is based on our current knowledge. However, it does not constitute a guarantee for any specific product features and does not establish a legally valid contractual relationship.

· Relevant phrases

H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H330 Fatal if inhaled.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.

R22 Harmful if swallowed.
 R23 Toxic by inhalation.
 R38 Irritating to skin.
 R41 Risk of serious damage to eyes.
 R43 May cause sensitisation by skin contact.
 R50 Very toxic to aquatic organisms.

· Training hints

Further information regarding the directions for use can be found in the Product Data Sheet.

· Classification according to Regulation (EC) No 1272/2008

The classification includes the relevant available information about the mixture or the substances contained therein.

The evaluation of the available information within the scope of classification refers to the forms and aggregate states in which the mixture has been placed on the market and will be used most likely.

The classification of that mixture was made:

on the basis of test data (-)
 by application of bridging principles (X)
 by application of calculation methods (X)

· Contact for technical information: Biocides: admin@thorchem.com.au

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 ICAO: International Civil Aviation Organisation
 PBT: persistent, bioaccumulative, toxic
 vPvB: very persistent, very bioaccumulative
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 Acute Tox. 4: Acute toxicity, Hazard Category 4
 Acute Tox. 2: Acute toxicity, Hazard Category 2

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Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic Hazard, Category 3

· Key literature references and sources for data:

Data source(s): Biocidal product dossier(s)

Own studies (reference to S-number).

· * Data altered since the previous version.

-AU-

1. IDENTIFICATION

Product Name	Ammonia Aqueous 10-35%
Other Names	Ammonia Aqua; Ammonia Solution; Ammonia Water; AMMONIUM HYDROXIDE; Ammonium Hydroxide (Nh4oh); Ammonium Liquor; Aqueous Ammonia
Uses	Cleaning compounds; Water treatment; Photographic developer; Manufacture of ammonium compounds.
Chemical Family	No Data Available
Chemical Formula	A mixture of NH3 (and possibly NH4OH) in H2O
Chemical Name	Ammonia Aqueous 10-35%
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	2132A E. Dominguez Street Carson CA 90810 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) 6

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Skin Corrosion/Irritation - Category 1C
 Specific Target Organ Toxicity (Single Exposure) - Category 3
 Acute Hazard To The Aquatic Environment - Category 1

Pictograms



Signal Word Danger

Hazard Statements

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Precautionary Statements

Prevention	P260	Do not breathe fume/gas/mist/vapours/spray.	
	P264	Wash exposed skin thoroughly after handling.	
	P271	Use only outdoors or in a well-ventilated area.	
	P273	Avoid release to the environment.	
	P280	Wear protective gloves/protective clothing/eye protection/face protection.	
	Response	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
		P363	Wash contaminated clothing before reuse.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	Storage	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310		Immediately call a POISON CENTER or doctor/physician.	
P391		Collect spillage.	
Disposal	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.	
	P405	Store locked up.	
	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.	

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards	6.1D	Substances that are acutely toxic - Harmful
	8.1A	Substances that are corrosive to metals
	8.2C	Substances that are corrosive to dermal tissue UN PGIII
	8.3A	Substances that are corrosive to ocular tissue
Environmental Hazards	9.1A	Substances that are very ecotoxic in the aquatic environment
	9.3C	Substances that are harmful to terrestrial vertebrates

3. COMPOSITION/INFORMATION ON INGREDIENTS**Ingredients**

Chemical Entity	Formula	CAS Number	Proportion
Water	H ₂ O	7732-18-5	65.0 - 90.0 %
Ammonium Hydroxide	Nh ₄ oh	1336-21-6	10.0 - 35.0 %

4. FIRST AID MEASURES**Description of necessary measures according to routes of exposure**

Swallowed	Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.
Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	If split on large areas of skin or hair, immediately drench with running water and remove clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor.
Inhaled	Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discoloration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.
Advice to Doctor	Treat symptomatically. Can cause corneal burns. Following exposure, the patient should be kept under medical supervision for at least 48 hours.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, remove containers from the path of fire.
Flammability Conditions	Flammable ammonia gas will be liberated at all temperatures, which can be explosive between 16- 25% in air. Addition to concentrated mineral acids will cause instant boiling and a possible explosion. If involved in a fire, wear self contained breathing apparatus and full protective clothing. Keep containers cool with water spray and if safe to do so remove containers from path of fire.
Extinguishing Media	Use water fog (if unavailable water spray), foam, carbon dioxide or dry chemical powder. If involved in a fire, keep containers cool with water spray.
Fire and Explosion Hazard	Non combustible material. May form flammable vapour mixtures with air. Avoid ignition sources. Caution should be exercised when opening storage containers or vessels. Flammable concentrations of ammonia gas can accumulate in the head space.
Hazardous Products of Combustion	Ammonia: The main products of combustion in air, at or above 780 Deg C are nitrogen and water with small amounts of nitrogen dioxide and ammonium nitrate. Ammonia decomposes into flammable hydrogen gas at approximately 450 Dec C. May form flammable mixtures with air. The presence of oil or other combustible material will increase fire hazard. Fatalities have occurred as a result of the explosive nature of the ammonia gas. If involved in a fire, keep containers cool with water spray. If safe to do so, remove containers from the path of fire.
Special Fire Fighting Instructions	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit. Please note: Structural fire fighters uniform will provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available

Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	2R

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. May be slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Isolate the danger area. Use clean, non-sparking tools and equipment. Shut off all possible sources if ignition.
Clean Up Procedures	Contain-prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Neutralise with dilute acid. Collect and seal in properly labelled containers or drums for disposal.
Containment	Stop leak if safe to do so.
Environmental Precautionary Measures	Do not allow product to reach drains, sewers or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Authority.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	<p>This material is a Schedule Poison S6 and must be stored, maintained and used in accordance with the relevant regulations.</p> <p>Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Exercise caution when opening storage containers or vessels. Caution should be exercised when opening storage containers or vessels. Flammable concentrations of ammonia gas can accumulate in the head space. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes. Ammonia is considered a pollutant, avoid run off into drains or waterways. Caution, flammable vapours may accumulate in confined spaces. Keep material away from sparks, flames and other ignition sources. Post 'NO SMOKING' signs in area of use. Avoid release of gas into workplace air. Empty containers contain residue which may be hazardous.</p> <p>Transport: Not to be loaded with Class 1, 4.3, 5.1, 5.2, 6*, 7, Foodstuff and foodstuff empties. * where the Class 6 substance is a cyanide and the Class 8 substance is an acid.</p>
Storage	<p>Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Limit quantity of material in storage. Restrict access to storage area. Post appropriate warning signs. Keep storage area separate from populated work areas. Inspect periodically for deficiencies. Consider leak detection and alarm systems, as required. Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat and ignition sources. Store away from incompatible materials such as oxidizing materials and strong acids. Structural materials and lighting and ventilation systems in storage area should be corrosion resistant. Store product below 25 degrees C. Protect from damage. This product has a UN classification of 2672 and a Dangerous Goods Class 8 (Corrosive) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.</p>
Container	<p>Container type/package must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.</p>

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	<p>No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC).</p> <p>However, exposure standard for: Ammonia: 8hr TWA=17mg/m³ (25 ppm), 15 min STEL=24mg/m³ (35 ppm). NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.</p> <p>These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.</p>
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Exposure Limits	No Data Available
Biological Limits	No information available on biological limits for this product.
Engineering Measures	Ensure ventilation is adequate and that air concentration of ammonia is controlled below exposure standard. This can be achieved via process enclosures, local exhaust ventilation or while wearing respirator or air-supplied mask. Keep containers closed when not in use. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	RESPIRATOR: If engineering controls and work practices are not effective in controlling exposure to ammonia, then wear suitable personal protective equipment. Have appropriate personal protective equipment available for use in emergencies such as spills or fire. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance, inspection, cleaning and evaluation (AS1715/1716). EYES: Chemical safety goggles. A face shield may be necessary (AS1336/1337). HANDS: Chemical resistant, impervious gloves (AS2161). CLOTHING: Long-sleeved coveralls and safety boots (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Liquid
Odour	Sharp, Irritating
Colour	Colourless
pH	11.7 1% Aqueous solution
Vapour Pressure	6.9 psi - 10.5 psi (@ No Data Available)
Relative Vapour Density	0.6 Air = 1
Boiling Point	18 - 37 °C
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible in water
Specific Gravity	0.88 - 0.92
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	35.05 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	100%
VOC Volume	No Data Available
Additional Characteristics	Flammability limits: 16-25% Odour threshold: 0.6-53 ppm (detection) ; 0.7-55 ppm (recognition)
Potential for Dust Explosion	Product is a liquid.

Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information	Corrosive Liquid.
Chemical Stability	May form explosive compounds with mercury, halogens, and hypochlorites. Reacts exothermically with strong mineral acids .
Conditions to Avoid	Avoid exposure to heat. Avoid exposure to light.
Materials to Avoid	Incompatible with peroxides, metal salts, acids, and reducing agents.
Hazardous Decomposition Products	Hydrogen.
Hazardous Polymerisation	Reactivity: Reacts violently with acids. Corrosive to copper, nickel, tin, zinc, and their alloys.

11. TOXICOLOGICAL INFORMATION

General Information	Oral LD50 (rat): 350 mg/kg Inhalation Human TCLO: 408ppm. (400 - 700 ppm causes severe irritation. 2000 - 3000 ppm may be fatal within 30 minutes. 10,000 ppm is immediately fatal). CHRONIC EFFECTS: Chronic exposure to ammonia may cause chemical pneumonitis and kidney damage. Repeated or prolonged exposure may result in bronchitis.
EyeIrritant	A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury.
Ingestion	Corrosive. Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.
Inhalation	Breathing in mists or aerosols will produce respiratory irritation. Inhalation of high concentrations may result in shortness of breath, chest pain, severe headache and lung damage including pulmonary oedema. Effects may be delayed.
SkinIrritant	Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.
Chronic	
Other	Chronic over exposure to ammonia may cause chemical pneumontis and kidney damage
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	Toxic to aquatic organisms. Fish 96hr LC50 (rainbow trout): 0.53 mg/L (for ammonia)
Persistence/Degradability	Ammonia is readily oxidised to nitrite, which is very toxic to aquatic organisms.
Mobility	No information available on mobility for this product.
Environmental Fate	Do not contaminate waterways.

Bioaccumulation Potential No information available on bioaccumulation for this product.
Environmental Impact No Data Available

13. DISPOSAL CONSIDERATIONS

General Information Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG

Proper Shipping Name AMMONIA SOLUTION
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
EPG 37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number 2672
Hazchem 2R
Pack Group III
Special Provision No Data Available

Land Transport (Malaysia)

ADR Code

Proper Shipping Name AMMONIA SOLUTION
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
EPG 37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number 2672
Hazchem 2R
Pack Group III
Special Provision No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name AMMONIA SOLUTION
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available
EPG 37 Toxic And/Or Corrosive Substances Non-Combustible
UN Number 2672
Hazchem 2R
Pack Group III
Special Provision No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	AMMONIA SOLUTION
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
ERG	154 Substances - Toxic and/or Corrosive (Non-Combustible)
UN Number	2672
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	AMMONIA SOLUTION
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	2672
Hazchem	2R
Pack Group	III
Special Provision	No Data Available
EMS	FA,SB
Marine Pollutant	Yes

Air Transport

IATA

Proper Shipping Name	AMMONIA SOLUTION
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	2672
Hazchem	2R
Pack Group	III
Special Provision	No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	6

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR001526

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes AMAQUB1000, AMAQUB1200, AMAQUB1201, AMAQUB2500, AMAQUB2501, AMAQUB2600, AMAQUB5000, AMAQUB5001, AMAQUB6000, AMAQUE0700, AMAQUE0701, AMAQUE0800, AMAQUE0900, AMAQUE1000, AMAQUE1001, AMAQUE1002, AMAQUE1003, AMAQUE1004, AMAQUE1005, AMAQUE1006, AMAQUE1007, AMAQUE1008, AMAQUE1009, AMAQUE1010, AMAQUE1011, AMAQUE1012, AMAQUE1100, AMAQUE1200, AMAQUE1300, AMAQUE1400, AMAQUE1500, AMAQUE1600, AMAQUE2000, AMAQUE2001, AMAQUE2500, AMAQUE3000, AMAQUE4000, AMAQUE4500, AMAQUE5200, AMAQUE5700, AMAQUE5800, AMAQUE5900, AMAQUE6000, AMAQUE6100, AMAQUE6200, AMAQUE6300, AMAQUE6301, AMAQUE6302, AMAQUE6303, AMAQUE6400, AMAQUE6500, AMAQUE6600, AMAQUE6700, AMAQUE6800, AMAQUE6900, AMAQUE7000, AMAQUE7200, AMAQUE7300, AMAQUE7800, AMAQUE7900, AMAQUE8000, AMAQUE8200, AMAQUE8300, AMAQUE8500, AMAQUI1000, AMAQUI1001, AMAQUI4000, AMAQUI5800, AMAQUI6000, AMAQUI6100, AMAQUI6400, AMAQUI7000, AMAQUI7500, AMAQUE5000, AMAQUE8400, AMAQUE1800, AMAQUE1801, AMAQUE1802, AMAQUE1803, AMAQUE1804, AMAQUE1805, AMAQUE1806, AMAQUE1807, AMAQUE1808, AMAQUE1809, AMAQUE1810, AMAQUE1811, AMAQUE1812, AMAQUE1813, AMAQUE1814, AMAQUE1815, AMAQUE1816, AMAQUE1817, AMAQUE1818, AMAQUE1819, AMAQUE1820, AMAQUE1821, AMAQUE1822, AMAQUE1823, AMAQUE1824, AMAQUE1825, AMAQUE1826, AMAQUE1827, AMAQUE1828, AMAQUE1829, AMAQUE1830, AMAQUE1831, AMAQUE1832, AMAQUE1833, AMAQUE1834, AMAQUE6304, AMAQUE1835, AMAQUI7070, AMAQUI5000, AMAQUE8201, AMAQUE8301, AMAQUE7901, AMAQUI7001, AMAQUI7501, AMAQUB7000, AMAQUB7001, AMAQUE1050, AMAQUE5500, AMAQUE5501, AMAQUE1843, AMAQUE8202, AMAQUE1015, AMAQUE1836, AMAQUE5521, AMAQUI7002

Revision 3
Revision Date 15 Apr 2015

Key/Legend
 < Less Than
 > Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres
CO₂ Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

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MONOPROPYLENE GLYCOL USP

SECTION 1 – GENERAL INFORMATION

Made:	POLIOLES S.A. DE C.V. Km.52.5 Carretera México-Toluca Lerma Edo. De México CP 52000	Original Date:	OCTOBER-1990
Manufacturer or Importer:	POLIOLES S.A. DE C.V. Km.52.5 Carretera México-Toluca Lerma Edo. De México CP 52000	Revision Date:	JUNE-2011
Emergency Telephone: 01 800 0021400 (SETIQ) Lerma Plant (01722) 265 86 00 BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS & HOLYDAYS			

SECTION 2 – PRODUCT INFORMATION

Common Chemical Name:	1,2 Propanediol
Product Name:	MONOPROPYLENE GLYCOL USP
Chemical Family:	Glycols
Synonyms:	Glycol, Dihidroxypropane, MPG,PG
Other Details:	C3H8O2

SECTION 3 – HAZARDS IDENTIFICATION

CAS Number:	57-55-6	LMPE-PPT:	No data available
UN Number:	Not applicable	LMPE-CT:	No data available
		LMPE-P:	No data available
		IPVS:	No data available
Hazard Ratings:			
NFPA: HEALTH:	0	FIRE:	1
REACTIVITY:	0	SPECIAL:	None
HMIS: HEALTH:	No data available	FIRE:	No data available
		REACTIVITY:	No data available
		SPECIAL:	No data available
		PPE:	No data available
Ingredients:		CAS Number:	Amount:
Monopropyleneglycol USP		57-55-6	100.0 %
Hazardous Substances as a Component:		CAS Number:	Content (% Weight):
Not applicable		Not applicable	Not applicable

SECTION 4 – PHYSICAL PROPERTIES

Boiling Pt:	187.4 °C	Color:	Colorless
Freezing Pt:	-59 °C	Odor:	Glycol
Flash Point:	104 °C	Odor Intensity:	Not applicable
Autoignition:	371 °C	Evaporation Rate:	No data available
Density:	1.038 g/cm3 (20°C)	Solubility in Water:	Soluble
Specific Gravity:	No data available	Vapor Pressure:	0.07 mmHg @ 20°C
Molecular Weight:	76.1g/mol	Critical Temperature:	No data available
Viscosity:	55-60.0 cPs @ 20°C	% Volatility:	No data available
pH:	No data available	Inf. Limits:	Lower: 2.6 %(V) High: 12.5 %(V)
Form/Appearance:	Liquid	Other Properties:	No data available

SECTION 5 – FIRE FIGHTING MEASURES

Extinguishing Media:	Use water fog, foam, CO2 or dry chemical extinguishing media for small fires.
Fire Fighting Procedures:	Firefighters should be equipped with self-contained breathing apparatus and turn out gear.
Procedure and Special Precautions For Fire Fighting:	Evacuate the area, close to the fire in favor of the wind and fight it from a safe distance. If it is possible, isolate or cool the near materials that are jeopardized.
Unusual Hazards:	None
Combustion Products are Harmful to Health:	CO and CO2

SECTION 6 – STABILITY AND REACTIVITY

Stability Data:	Stable
Chemical Instability:	Not applicable
Incompatibility:	Oxidizing agents (acid perclórico, chromic acid, etc.), strong bases (sodium hydroxide), strong acids (sulfuric acid, spirit of salt, etc.).
Hazardous Polymerization:	Not occur.

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MONOPROPYLENE GLYCOL USP

SECTION 6 – STABILITY AND REACTIVITY (Cont.)

Hazardous Decomposition:	CO and CO ₂
Corrosive Properties:	None.
Oxidizer Properties:	Not an Oxidizer
Conditions/Hazards to Avoid:	Not known.

SECTION 7 – HEALTH EFFECTS AND FIRST AID MEASURES

WARNING STATEMENT	In the skin it causes irritation to the repeated or prolonged contact.
CAUTION:	
Potential Health Effects	
Primary Routes of Exposure:	Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.
Acute Overexposure Effects:	Not data available.
INGESTION:	It can cause damage to the digestive system
INHALATION:	It does not happen to room temperature and under normal conditions of use. Due to the physical properties of the material, the presence of steam to room temperature is minimum. One does not hope that effects to the health by the exhibition to steam generated to room temperature exist. Nevertheless it can be disturbed to high temperatures, generating steam that can be irritating.
SKIN:	It can cause slight irritations in the skin but they do not cause sensitization. It is not probable that the risk exists of which the material is absorbed by a single exhibition prolonged to the material.
EYES:	It can cause temporary irritation.
Chemical Considered as:	Not considered as a carcinogenic, teratogenic or mutagenic.
Toxicology Test Data:	MONOPROPYLENE GLYCOL USP
CL50: Rat > 5mg/kg.	DL50: Rabbit/skin >20,000 mg/kg. Oral/rat 20,000 – 34,000 mg/kg.
Emergency and First Aid:	If possible, place the affected person in a position comfortable and comforting, avoid you lower your body temperature. Get immediate medical attention. All first aid procedures should be reviewed periodically the doctor familiar with the chemical and conditions of use in the center work.
First Aid Procedures - Aggravated Medical Conditions:	No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product.
First Aid Procedures - Ingestion:	If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.
First Aid Procedures - Inhalation:	Move to fresh air. Aid in breathing, if necessary. Get immediate medical attention.
First Aid Procedures - Skin:	Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. Get immediate medical attention.
First Aid Procedures - Eyes:	Immediately rinse eyes with running water for 15 minutes. Get immediate medical attention.
First Aid Procedures - Special Precautions:	No data available.
Antidotes:	A specific antidote does not exist to resist the effects brought about by this product. Medical attention according to the symptoms and conditions of the patient must be provided.
Other Relevant Information:	Not known

SECTION 8 – ACCIDENTAL RELEASE MEASURES

General Accidental Release Measures:	Use the appropriate personal protective equipment. Narrow access to the affected area and eliminate ignition sources. Ventilate the area and prevent the material from entering sewers, streams or aquifers. Eliminate or reduce leak if without risk. For large amounts pump the material into a suitable container, absorb remainder with an inert material and set it according to current regulations. This material is not regulated by RCRA or CERCLA.
Mitigation Method:	Inert material to contain the flight or spills (sand, vermiculita, etc.).

SECTION 9 – PERSONAL PROTECTION

General:	Approved respiratory protection, safety glasses, gloves, rubber boots and clothing protection to minimize skin contact.
Clothing:	Gloves, coveralls, apron, boots as necessary to prevent skin contact.
Eyes:	Chemical goggles; also wear a face shield if splashing hazard exists.
Respiration:	Approved organic vapor mist respirator as necessary.
Ventilation:	Use local exhaust to control vapors/mists.
Explosion Proofing:	None required.
Other Personal Protection Data:	No data available

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MONOPROPYLENE GLYCOL USP

SECTION 10 – TRANSPORT DATA

NOM-004-SCT-1994:	It is not regulated like substance, material or dangerous remainder.			
SCT Rules:	Is not considered like dangerous material.			
American Guide Emergency Response:	Not applicable			
UN Recommendations for Transport:	Not applicable			
DOT by 49 CFR classification:	No data available			
IMDG CODE (Maritime):	It is not regulated like substance, material or dangerous remainder.			
DGR IATA (Air):	It is not regulated like substance, material or dangerous remainder.			
Listed on Inventory TSCA:	YES			
RCRA Haz Waste No.:	Not applicable			
CERCLA:	NO			
Reportable Qty.:	Not applicable			
Government Regulation:	The spills must be contained and placed in containers adapted for its disposition, this material is not regulated by RCRA or CERCLA.			
Chemical Name	CAS Number	UN Number	NJ/PA/MA	RTK
1,2 Propanediol	57-55-6	Not applicable	No data available	Ex

SECTION 11 – ECOLOGICAL INFORMATION

Requirements:	It must comply with the local regulation of hazardous waste, water, air and soil. Do not discharge substance in to sewer system.
Ecotoxicology Information:	No data available

SECTION 12 – ADITIONAL INFORMATION

Handling:	Avoid generation of vapors, inspect the containers for leaks before managed, kept tightly closed, never to return contaminated material to original container. Avoid incompatible materials such as oxidizing agents, acids and strong bases, as they may increase the risk of fire or explosion, avoid heat, flame and other sources of ignition.
Transport:	It is not classified and regulated for the transport of dangerous materials.
Other Storage and Handling Data:	Store in a ventilated, dry away from heat and ignition sources. The area storage must be clearly identified, clear of obstacles. Have adequate fire extinguishers and equipment for fighting fires, leaks and spills, Store away from acids, bases and strong oxidizing agents. Keep containers properly labeled, tightly closed and in good condition.
Other Precautions:	Not applicable
Waste Disposal:	The residues will have to get ready in agreement with the effective local regulation. They can be incinerated in places authorized. To never unload to the drainage system.
Container Disposal:	They will have to get ready according to the effective local regulation. The containers will have to be castings and envoys to registered companies and authorized to have this type residues. It is recommended to squash and/or to perforate the empty containers to avoid that these are used to store some other substance of form noncontrolled.

SECTION 13 – REFERENCES

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL. THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION WILL NOT BE CONSIDERATE ANY EVENT AS PART OF OUR TERMS AND CONTIDIONS OF SALES. THIS INFORMATION GIVEN AND ACCEPTED AT YOUR OWN RISK. POLIOLES CORPORATION WILL NOT MAKE ITS PRODUCTS AVAILABLE TO CUSTOMERS FOR USE IN THE MANUFACTURE OF MEDICAL DEVICES WHICH ARE INTENDED FOR PERMANENT IMPLANTATION IN THE HUMAN BODY OR IN PERMANENT CONTACT WITH INTERNAL BODILY TISSUES OR FLUIDS. WE AT POLIOLES TAKE PRIDE IN OUR PRODUCTS, AND OUR TRADITION OF DEVELOPING INNOVATIVE APPLICATIONS IN PARTNERSHIP WITH OUR CUSTOMERS. HOWEVER, THE POSSIBILITY OF BEING REQUIRED TO RESPOND TO UNFOUNDED LITIGATION AND/OR CLAIMS ARISING OUT OF CO NC E R NS RE L A T I N G T O S U C H U S E P R E S E N T S A N U N A C C E P T A B L E R I S K T O T H E C O M P A N Y .



SAFETY DATA SHEET

ROHM AND HAAS AUSTRALIA PTY. LTD.

Product name: PRIMAL™ RHA-884 Acrylic Emulsion

Issue Date: 24.07.2017
Print Date: 25.07.2017

ROHM AND HAAS AUSTRALIA PTY. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

Product name: PRIMAL™ RHA-884 Acrylic Emulsion

Recommended use of the chemical and restrictions on use

Identified uses: Coatings product

COMPANY IDENTIFICATION

ROHM AND HAAS AUSTRALIA PTY. LTD.
A Subsidiary of The Dow Chemical Company
LEVEL 17
8 EXHIBITION STREET
MELBOURNE VIC 3000
AUSTRALIA

Customer Information Number:

1800-780-074
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 1800-033-882

Local Emergency Contact: 1800-033-882

For advice, contact a doctor (at once) or the Australian Poisons Information Centre: 131 126
Transport Emergency Only Dial 000

SECTION 2: HAZARD(S) IDENTIFICATION

GHS Classification

Not classified as hazardous according to the criteria of the Work Health and Safety Regulations, Australia.

Other hazards

No data available

SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

This product is a mixture.

Component	CASRN	Concentration
Diphenyl Ketone	119-61-9	>= 0.1 - < 0.6 %
Ammonium hydroxide	1336-21-6	>= 0.1 - < 0.6 %

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Inhalation: Move to fresh air.

Skin contact: Wash with water and soap as a precaution. If skin irritation persists, call a physician.

Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.

Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

Hazchem Code

None Allocated

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: No data available

Unusual Fire and Explosion Hazards: Material can splatter above 100C/212F. Dried product can burn.

Advice for firefighters

Fire Fighting Procedures: No data available

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Material can create slippery conditions.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods and materials for containment and cleaning up: Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

SECTION 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.

Conditions for safe storage: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage stability

Storage temperature: 1 - 49 °C

Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Diphenyl Ketone	US WEEL	TWA	0.5 mg/m ³
Ammonium hydroxide	ACGIH	TWA	25 ppm, Ammonia
	ACGIH	STEL	35 ppm, Ammonia
	Dow IHG	TWA	10 ppm, As Ammonia
	AU OEL	STEL	24 mg/m ³ 35 ppm
	AU OEL	TWA	17 mg/m ³ 25 ppm

Exposure controls

Engineering controls: Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility.

Individual protection measures

Eye/face protection: Safety glasses with side-shields. Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Neoprene gloves

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. For airborne concentrations up to 10 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) ammonia/methylamine cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

Other Information: Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:
 AS/NZS 1336: Eye and face protection – Guidelines.
 AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.
 AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.
 AS/NZS 2161: Occupational protective gloves.
 AS/NZS 2210: Occupational protective footwear.
 AS/NZS 4501: Occupational protective clothing Set

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid milky
Color	white
Odor	Ammonia
Odor Threshold	No data available
pH	8.3 - 8.5
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	100 °C Water
Flash point	Noncombustible
Evaporation Rate (Butyl Acetate = 1)	<1 Water
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	17 mmHg at 20 °C Water
Relative Vapor Density (air = 1)	<1 Water
Relative Density (water = 1)	No data available
Water solubility	Dilutable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available

Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	1.0 g/cm ³
Molecular weight	No data available
Percent volatility	53 - 55 % Water

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: No data available

Possibility of hazardous reactions: None known.
Product will not undergo polymerization.
Stable

Conditions to avoid: No data available

Incompatible materials: There are no known materials which are incompatible with this product.

Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

Product test data not available. Refer to component data.

Skin corrosion/irritation

May cause transient irritation.

Serious eye damage/eye irritation

No eye irritation

Sensitization

Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Product test data not available. Refer to component data.

Carcinogenicity

Product test data not available. Refer to component data.

Teratogenicity

Product test data not available. Refer to component data.

Reproductive toxicity

Product test data not available. Refer to component data.

Mutagenicity

Product test data not available. Refer to component data.

Aspiration Hazard

Product test data not available. Refer to component data.

Additional information

No data are available for this material. The information shown is based on profiles of compositionally similar materials.

COMPONENTS INFLUENCING TOXICOLOGY:

Diphenyl Ketone

Acute inhalation toxicity

The LC50 has not been determined.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Bone marrow.

Carcinogenicity

Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

Teratogenicity

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Ammonium hydroxide

Acute inhalation toxicity

The LC50 has not been determined.

Sensitization

For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

No relevant data found.

Carcinogenicity

Did not cause cancer in laboratory animals.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

General Information

There is no data available for this product.

Ecotoxicity

Diphenyl Ketone

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Fathead minnow (*Pimephales promelas*), 96 Hour, 14.7 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

EC50, ceriodaphnia dubia (water flea), 48 Hour, 7.6 mg/l, Method Not Specified.

EC50, Daphnia magna (Water flea), 48 Hour, 6.784 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 3.5 mg/l, OECD Test Guideline 201

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1 mg/l, OECD Test Guideline 201

Toxicity to bacteria

NOEC, 3 Hour, 31.6 mg/l, OECD Test Guideline 209

Chronic toxicity to fish

NOEC, *Pimephales promelas* (fathead minnow), 7 d, 5.86 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia (water flea), 21 d, 0.20 mg/l

Ammonium hydroxide

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

LC50, *Lepomis macrochirus* (Bluegill sunfish), 96 Hour, 0.87 mg/l

LC50, *Pimephales promelas* (fathead minnow), 96 Hour, 1.2 mg/l

Persistence and degradability

Diphenyl Ketone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 66 - 84 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.63 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 3.009 d
Method: Estimated.

Ammonium hydroxide

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen). Biodegradation rate may increase in soil and/or water with acclimation.

Theoretical Oxygen Demand: 0.76 mg/mg

Bioaccumulative potential

Diphenyl Ketone

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 3.18 Measured

Bioconcentration factor (BCF): 3.4 - 9.2 Cyprinus carpio (Carp) 42 d

Measured **Bioconcentration factor (BCF):** 3.4 - 12 Oryzias latipes (Orange-red killifish) 42 d Measured

Ammonium hydroxide

Bioaccumulation: No bioconcentration is expected because of the relatively high water solubility.

Mobility in Soil

Diphenyl Ketone

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 430 Measured

Ammonium hydroxide

Potential for mobility in soil is very high (Koc between 0 and 50).

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

Diphenyl Ketone

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Ammonium hydroxide

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods: Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

Contaminated packaging: Empty containers retain product residues. Follow label warnings even after container is emptied. Improper disposal or reuse of this container may be dangerous and illegal. Refer to applicable federal, state and local regulations.

SECTION 14: TRANSPORT INFORMATION

ADG

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Not regulated for transport
Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

Hazchem Code

None Allocated

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

Poison Schedule

Not Scheduled

Australia Inventory of Chemical Substances (AICS)

All ingredients in this preparation are listed in the Australian Inventory of Chemical Substances, AICS, or are exempt.

SECTION 16: ANY OTHER RELEVANT INFORMATION

Revision

Identification Number: 101149157 / 1820 / Issue Date: 24.07.2017 / Version: 4.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
AU OEL	Australia. Workplace Exposure Standards for Airborne Contaminants.
Dow IHG	Dow Industrial Hygiene Guideline
STEL	Exposure standard - short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

ROHM AND HAAS AUSTRALIA PTY. LTD. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **Product name:** **NX 795**
- **Product identifier**
Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol
Cas No.: 25265-77-4
EC Number: 246-771-9
- **Registration number** 01-2119441305-48-0002
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Industrial use**
Industrial manufacturing
Manufacture of substances
Distribution and storage
Formulations
Use:
as an intermediate
as an additive (flocculation, flotation etc)
in adhesives
in coatings
in construction chemicals
in inks
in lubricants
in greases
in agro chemicals (carrier)
in automotive care products
in mining (drilling muds and ore flotation)
for synthesis of other substances
- **Professional use**
Use:
in adhesives
in automotive care products
in cleaning agents
in coatings
in inks
in construction chemicals
in laboratories
in lubricants
in greases
in mining (drilling muds and ore flotation)
- **Consumer use**
Use:
in adhesives
in agro chemicals (carrier)
in air care products
in automotive care products
in cleaning agents
in coatings
in inks
in construction chemicals
in lubricants
in greases
- **Uses advised against** Not identified.
- **Application of the substance / the preparation** Raw materials for coatings

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- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Perstorp Oxo Belgium AB
Durmakker 33
Havennummer 8768A
BE-9940 Evergem, Belgium
Phone +32 9 257 17 17
Fax +32 9 253 26 78
www.perstorp.com
- **Further information obtainable from:** productinfo@perstorp.com
- **Emergency telephone number:** (Int.) +46 8 337043 (Emergency Response Center, Sweden)

SECTION 2: Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The substance is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
The substance is not classified as hazardous to health or the environment according to the substance directive.
- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Not applicable.
- **Hazard pictograms** Not applicable.
- **Signal word** Not applicable.
- **Hazard statements** Not applicable.
- **Precautionary statements** Not applicable.
- **Hazard description:** The product may cause slight irritation on repeated or prolonged skin contact.
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** No.
- **vPvB:** No.

SECTION 3: Composition/information on ingredients

- **Substances** Yes.

· **Chemical components:**

CAS: 25265-77-4	isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol	99%
EINECS: 246-771-9		
Reg.nr.: 01-2119441305-48-0002		

SECTION 4: First aid measures

- **Description of first aid measures**
- **After inhalation:** First aid measures not required, but get fresh air for personal comfort.
- **After skin contact:**
Exposed skin should be washed to prevent irritation caused by prolonged skin contact.
- **After eye contact:** Rinse opened eye under running water.
- **After swallowing:** If a large quantity has been ingested or you feel unwell, get medical advice/attention.

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- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **Extinguishing media**
All types of extinguishing media are suitable. Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO₂)
- **Advice for firefighters**
- **Protective equipment:**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear safety glasses, gloves, protective clothing and rubber boots for hygienic reasons.
- **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**
Small spill:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
Large spill:
Pump up the product into a spare container suitably labelled.
Clean the affected area carefully; suitable cleaners are:
warm water and cleansing agent
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **Precautions for safe handling** No special measures required.
- **Information about fire - and explosion protection:** Not applicable
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Further information about storage conditions:** Keep container tightly sealed.
- **Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

• **Control parameters**

• **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

• **DNELs**

Not determined

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

Oral	DNEL long term syst.	8.33 mg/kg bw/d (general public)
Dermal	DNEL long term syst.	13.9 mg/kg bw/d (workers)
		8.33 mg/kg bw/d (general public)
Inhalative	DNEL long term syst.	49 mg/m ³ (workers)
		14.5 mg/m ³ (general public)

• **PNECs**

Not determined

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

PNEC STP	7.5 mg/l (-)
PNEC freshwater	0.015 mg/l (-)
PNEC intermittent	0.15 mg/l (-)
PNEC marine water	0.0015 mg/l (-)
PNEC sediment (MW)	0.017 mg/kg dw (-)
PNEC soil	0.13 mg/l (-)

• **Exposure controls**

• **Personal protective equipment:**

• **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Ensure good ventilation/exhaustion at the workplace.

Avoid contact with the eyes.

• **Respiratory protection:** Not necessary if room is well-ventilated.

• **Protection of hands:**

Protective gloves not really required. However, we recommend using protective gloves made of rubber.

• **Material of gloves**

Butyl rubber, BR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• **Eye protection:**



Safety glasses

• **Body protection:** Normal work clothes for the chemical industry (long legs and sleeves).

• **Limitation and supervision of exposure into the environment** Not applicable

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· **Risk management measures**

Exposure scenarios are not available since not classified as dangerous for health or environment according to CLP Regulation (EC) No 1272/2008.

SECTION 9: Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Colour:	Colourless
· Odour:	Mild
· Odour threshold:	Not applicable

· **pH-value at 20 °C:** 3.54

· **Change in condition**

· Melting point/Melting range:	<-70.25 °C (EU Method A.1)
· Boiling point/Boiling range:	257 °C (OECD 103)

· **Flash point:** 114 °C (closed cup, ASTM D 6450-99)

· **Flammability (solid, gaseous):** Not applicable

· **Ignition temperature:** 380 °C (ASTME 659-78)

· **Danger of explosion:** Not explosive.

· **Explosion limits:** Not applicable

· **Oxidizing properties:** Not oxidizing.

· **Vapour pressure at 20 °C:** 1.3 Pa (EU Method A4)

· **Density at 20 °C:** 0.95 g/cm³ (ISO 2811-2)

· **Solubility in / Miscibility with water at 20 °C:** <1 g/l

· **Partition coefficient (n-octanol/water) at 25 °C:** 3.2 log POW (OECD 117)

· **Viscosity:**

· **Dynamic at 20 °C:** 16 mPas (ISO 3219)

· **Other information:** No further relevant information available.

SECTION 10: Stability and reactivity

· **Reactivity**

There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.

· **Chemical stability:** The product is stable at normal conditions.

· **Possibility of hazardous reactions:** No dangerous reactions known.

· **Conditions to avoid:** To avoid thermal decomposition do not overheat.

· **Incompatible materials:** Strong oxidizing agents.

· **Hazardous decomposition products:**

In case of fire, the following can be released:

Carbon monoxide (CO)

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Carbon dioxide (CO₂)

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SECTION 11: Toxicological information

• **Information on toxicological effects**

• **Acute toxicity:**

• **LD/LC50 values:**

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

Oral	LD50	6500 mg/kg (rat)
Dermal	LD50	15200 mg/kg (rabbit)

• **Remark:**

The substance was not acutely toxic by the inhalation route in rats exposed to concentrated vapors in air for up to eight hours.

• **Primary irritant effect:**

• **on the skin:**

Causes mild skin irritation.

(EU Method B.4)

GHS Cat 3.

• **on the eye:**

Slightly irritating.

(OECD 405)

No classification according to GHS criteria.

• **Sensitisation** No skin sensitisation. (EU Method B.6)

• **Repeated dose toxicity**

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

Oral	NOAEL	1000 mg/kg bw/day (rat) (OECD 407)
	NOAEL/51d	1000 mg/kg bw/day (rat) (OECD 422)
	NOEL	15 mg/kg/d (rat) (OECD 407)

• **Carcinogenicity:** No carcinogenic effects have been observed.

• **Mutagenicity:**

The product is not considered to be mutagenic.

In vitro:

Not mutagenic in Bacterial Reverse Mutation Assay. (OECD 471)

The substance is not clastogenic. Mammalian Chromosomal Aberration Test (OECD 473).*

Not mutagenic in mammalian cells. (OECD 476)*

In vivo:

Not mutagenic in in vivo Mammalian Erythrocyte Micronucleus Test. (OECD 474)

• **Reproductive toxicity:**

No indication of reproductive toxicity according to OECD guideline 422 screening test.

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

Oral	NOAEL (P)	1000 mg/kg bw/day (rat) (OECD 422)
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• **Remark:** * read-across from supporting substance (structural analogue)

SECTION 12: Ecological information

• **Toxicity**

• **Aquatic toxicity:**

Harmful to aquatic organisms.

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25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

EC50/48h	147.8 mg/l (Daphnia magna) (OECD 202)
EbC50(72h)	8.1 mg/l (Pseudokirchnerella subcapitata) (OECD 201)
ErC50(0-72h)	15 mg/l (Pseudokirchnerella subcapitata) (OECD 201)
LC0/96h	>19 mg/l (Oncorhynchus mykiss) (OECD 203)

• **Persistence and degradability**

The product is readily biodegradable.

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

BOD28	>77 % (-) (OECD 301B)
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• **Behaviour in environmental systems:**

• **Bioaccumulative potential**

Low potential for accumulation in organisms

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

BCF	44.1 (-) (QSAR, BCFWIN v. 3.00)
log Pow	3.2 (-) (OECD 117)

• **Mobility in soil**

The substance is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Koc which indicates a moderate to high mobility in soil.

25265-77-4 isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol

Log Koc	1.5-2.8 (-)
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• **Results of PBT and vPvB assessment**

• **PBT:** No.

• **vPvB:** No.

• **Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

• **Waste treatment methods**

The product is not classified as hazardous waste.
Incinerate at a licensed installation.

• **European waste catalogue**

16 03 06	organic wastes other than those mentioned in 16 03 05
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• **Uncleaned packaging:**

Thoroughly emptied and clean packaging may be recycled.
Contaminated packaging materials must be disposed of in the same manner as the product.

• **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

• **UN Number**

• **ADR, ADN, IMDG, IATA** -

• **Proper shipping name (Technical Name)**

• **ADR, ADN, IMDG, IATA** -

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- | | |
|--|--|
| · Transport hazard class(es) | |
| · ADR, ADN, IMDG, IATA | |
| · Class | - |
| · Packing group | |
| · ADR, IMDG, IATA | - |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | Not dangerous goods according to the above specifications. |

SECTION 15: Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
Not applicable.
Not applicable
- **National regulations:**
- **Other regulations, limitations and prohibitive regulations** Not applicable.
- **Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

This Safety Data Sheet is not a Product Specification. It is based on our present knowledge and experience and it is intended to serve as a guide for safe handling of the product regarding to health and environmental aspects.

- **Department issuing SDS:** Corporate EHSQ Perstorp Holding AB
- **Contact:** Corporate EHSQ
- *** Data compared to the previous version altered.**

GB

TERIC® N9

Version 1.2 Revision Date: 27.01.2016 SDS Number: 400001003536 Date of last issue: 25.12.2015
Date of first issue: 09.10.2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TERIC® N9

Manufacturer or supplier's details

Company : Huntsman Corporation Australia Pty Limited
Address : 61 Market Road
Brooklyn,
Victoria 3012
Australia
Telephone : 1300 301 529
E-mail address : Global_Product_EHS_HPP@huntsman.com
Emergency telephone : Australia: 1800 786 152 (ALL HOURS)
International: +65 6336 6011 (ALL HOURS)

Recommended use of the chemical and restrictions on use

Recommended use : Surfactant

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Acute toxicity (Oral) : Category 4
Serious eye damage/eye irritation : Category 1
Chronic aquatic toxicity : Category 2

GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H302 Harmful if swallowed.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
Response:

TERIC® N9

Version	Revision Date:	SDS Number:	Date of last issue: 25.12.2015
1.2	27.01.2016	400001003536	Date of first issue: 09.10.2015

P391 Collect spillage.
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Disposal:

P501 Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
Nonylphenol, ethoxylated	127087-87-0	>= 60 - <= 100

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
 Consult a physician.
 Show this material safety data sheet to the doctor in attendance.
 Do not leave the victim unattended.
- If inhaled : If unconscious place in recovery position and seek medical advice.
 If symptoms persist, call a physician.
- In case of skin contact : If skin irritation persists, call a physician.
 If on skin, rinse well with water.
 If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
 In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 Continue rinsing eyes during transport to hospital.
 Remove contact lenses.
 Protect unharmed eye.
 Keep eye wide open while rinsing.
 If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
 Do NOT induce vomiting.
 Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.

TERIC® N9

Version	Revision Date:	SDS Number:	Date of last issue: 25.12.2015
1.2	27.01.2016	400001003536	Date of first issue: 09.10.2015

Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : No data is available on the product itself.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No data is available on the product itself.
- Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.

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To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
- Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Electrical installations / working materials must comply with the technological safety standards.
- Materials to avoid : Keep away from oxidizing agents.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

Personal protective equipment

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Refer to Australian/New Zealand Standard AS/NZS 2161.1: 2000 for guidance on selection and use of protective gloves.

Eye protection

: Eye wash bottle with pure water
Tightly fitting safety goggles.
Wear face-shield and protective suit for abnormal processing problems.
Refer to Australian/New Zealand Standard AS/NZS 1337:1992 for guidance on selection and use of protective eyewear.

Skin and body protection

: impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Color : clear
- Odor : No data is available on the product itself.
- Odor Threshold : No data is available on the product itself.
- pH : 6 - 8, Concentration: 10 g/l
- Melting point : < 0 °C

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Flash point	: 240 °C Method: open cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Upper explosion limit	: No data is available on the product itself.
Lower explosion limit	: No data is available on the product itself.
Vapor pressure	: No data is available on the product itself.
Relative vapor density	: No data is available on the product itself.
Relative density	: 1.06
Density	: No data is available on the product itself.
Solubility(ies)	
Water solubility	: No data is available on the product itself.
Solubility in other solvents	: Solvent: Methanol Description: soluble
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Autoignition temperature	: 425 °C
Thermal decomposition	: No data is available on the product itself.
Viscosity	
Viscosity, dynamic	: 330 mPa.s (20 °C)
Self-Accelerating decomposition temperature (SADT)	: No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: None known.
	No decomposition if stored and applied as directed.
Conditions to avoid	: No data available

SECTION 11. TOXICOLOGICAL INFORMATION

Routes of exposure	: No data is available on the product itself.
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Acute toxicity

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Acute oral toxicity - Product : Acute toxicity estimate : 505.56 mg/kg
Method: Calculation method

Acute inhalation toxicity : No data available

Ingredients:

Nonylphenol, ethoxylated:

Acute dermal toxicity : LD50 (Rabbit): 2,830 - 4,400 mg/kg

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Product:**

Remarks: Extremely corrosive and destructive to tissue.

Serious eye damage/eye irritation**Product:**

Remarks: May cause irreversible eye damage.

Respiratory or skin sensitization**Ingredients:**

Nonylphenol, ethoxylated:

Routes of exposure: Skin

Species: Guinea pig

Result: Does not cause skin sensitization.

Assessment: No data available

Chronic toxicity**Germ cell mutagenicity****Ingredients:**

Nonylphenol, ethoxylated:

Genotoxicity in vitro

: Concentration: 100 - 10000 ug/plate
Metabolic activation: with and without metabolic activation
Result: negative

Concentration: .01 - 1000 µg/L
Metabolic activation: negative
Result: negative

Concentration: 0 - 50 µg/L
Result: negative

Concentration: 75 mg/kg
Result: negative

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Ingredients:

Nonylphenol, ethoxylated:
Genotoxicity in vivo : Cell type: Germ
Exposure time: 5 d
Dose: 0 - 60 mg/kg
Result: negative

Carcinogenicity**Ingredients:**

Nonylphenol, ethoxylated:
Species: Rat
Application Route: Oral
Exposure time: 24 month(s)
Dose: 140 mg/kg
Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Effects on fertility : No data available

Ingredients:

Nonylphenol, ethoxylated:
Effects on fetal development : Species: Rat
Application Route: Other
General Toxicity Maternal: NOAEL (No observed adverse effect level): 50 mg/kg body weight
Result: No teratogenic effects.

Reproductive toxicity - Assessment : No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Repeated dose toxicity**Ingredients:**

Nonylphenol, ethoxylated:
Species: Rat
No-observed-effect level: 10 mg/kg/d
Application Route: Ingestion
Exposure time: 2,160 h
Method: Subchronic toxicity

Species: Rat
NOAEL (No observed adverse effect level): > 140 mg/kg/d

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Application Route: Ingestion
Exposure time: 2 yr
Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information**Product:**

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxicity to fish : No data available

Ingredients:

Nonylphenol, ethoxylated:
Toxicity to daphnia and other aquatic invertebrates : EC50: 6.4 mg/l
Exposure time: 48 h

Ingredients:

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Nonylphenol, ethoxylated:
Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 50 mg/l
Exposure time: 48 h
Test substance: Fresh water

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : No data available

M-Factor (Chronic aquatic toxicity) : No data available

Ingredients:

Nonylphenol, ethoxylated:
Toxicity to bacteria : LC50 (Bacteria): 60.6 mg/l
Exposure time: 5 min
Test substance: Marine water

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:
No data available

Persistence and degradability**Ingredients:**

Nonylphenol, ethoxylated:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 31 %
Exposure time: 28 d

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Concentration: 50 mg/l
Result: Not readily biodegradable.
Biodegradation: 25 - 30 %

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential

Bioaccumulation : No data available

Partition coefficient: n-octanol/water : No data available

Mobility in soil

Mobility : No data available

Distribution among environmental compartments : No data available

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

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Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Not applicable

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulation****IATA**

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(ETHOXYLATED NONYLPHENOL)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(ETHOXYLATED NONYLPHENOL)

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Class	: 9
Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
Marine pollutant	: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**ADG**

UN number	: UN 3082
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHOXYLATED NONYLPHENOL)
Class	: 9
Packing group	: III
Labels	: 9
Hazchem Code	: 3Z

SECTION 15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture**

R-phrases(s)	: R22 R41 R51/53	Harmful if swallowed. Risk of serious damage to eyes. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	: S26 S39 S61	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection. Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Other international regulations**The ingredients of this product are reported in the following inventories:**

CH INV	: The mixture contains substances listed on the Swiss Inventory
TSCA	: On TSCA Inventory
DSL	: All components of this product are on the Canadian DSL.
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory

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KECI : On the inventory, or in compliance with the inventory

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SECTION 16. OTHER INFORMATION

Date format : dd.mm.yyyy

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Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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