Date of issue/ Date of revision	:	02.08.2023
Date of previous issue	:	00.00.0000
Version	:	1.0

SAFETY DATA SHEET

Ammonia 31,75%

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

1.1 Product identifier

Product name	:	Ammonia 31,75%
Index number	:	007-001-01-2
EC number	:	215-647-6
REACH Registration number	:	01-2119488876-14-0011
CAS number	:	1336-21-6
Product code	:	PA004L
Product type	:	Liquid
Chemical formula	:	NH4OH

1.2 Relevant identified uses of the substance or mixture and uses advised against

Notes	:	The safety data sheet and any attached exposure scenario are compiled in accordance with the REACH regulation and in no way reflects the specification, purity or quality standards required for specific applications and use of the product identified in section 1.1.

Identified uses
Industrial distribution. Industrial USE to formulate chemical product mixtures. Industrial USE as chemical intermediate. Industrial Use for flue gas NOx and SOx reduction. Industrial USE as reactive agent/processing aid and for general chemical applications (e.g. Nutrient in wastewater treatment). Industrial USE as heat transfer fluid. Industrial USE as chemical/process nutrient. Industrial USE for surface/article treatment. Does not end up onto surface. Industrial USE to manufacture specialist chemical/other products. Industrial USE as part of specialist chemicals/other products . Professional formulation of mixtures. Professional USE as chemical/process nutrient. Professional USE as reactive agent/processing aid and for general chemical applications. Professional USE as a laboratory/research chemical. Professional USE as heat transfer fluid. Professional USE for surface/article treatment. Does not end up onto surface. Professional USE as part of specialist chemicals/other products.

Professional USE as photochemical.

Uses advised against	:	Other non-specified industry
Reason	:	Due to lack of related experience or data, the supplier cannot approve this use.

1.3 Details of the supplier of the safety data sheet

Yara UK Limited

Address

Street	:	Pocklington Industrial Estate
Postal code	:	YO42 1DN
City	:	York
Country	:	United Kingdom
Telephone number	:	+44 1759 302545
Fax no.	:	+44 1759 303650
e-mail address of person responsible for this SDS	:	yarauk.hesq@yara.com

1.4 Emergency telephone number

National advisory body/Poison Center : Not available.

Supplier

Emergency telephone number (with hours of operation)	:	National Chemical Emergency Centre +44 (0) 1865 407333 (24h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture.

Product definition : Mono-constituent substance

Classification according to UK CLP/GHS

Classification :
Skin Corr. 1B, H314
Eye Dam. 1, H318
STOT SE 3, H335 (Respiratory tract irritation)
Aquatic Acute 1, H400
Aquatic Chronic 2, H411

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard 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.
		H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention	:	P280	Wear protective gloves/clothing and eye/face protection.
		P260	Do not breathe gas or vapour.
Response	:	P273	Avoid release to the environment.
		P305	IF IN EYES:
		P351	Rinse cautiously with water for several minutes.
		P338	Remove contact lenses, if present and easy to do. Continue rinsing.
		P310	Immediately call a POISON CENTER or doctor/physician.
		P304	IF INHALED:
		P340	Remove person to fresh air and keep comfortable for breathing.
		P303	IF ON SKIN (or hair):
		P361	Take off immediately all contaminated clothing.
		P353	Rinse skin with water.

EU Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Applicable, Table 3.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
Not applicable (Inorganic)	N/A	N/A	N/A	Not applicable (Inorganic)	N/A	N/A

Other hazards which do not result in classification : None known.

Additional information : Ammonia gas can form explosive mixtures together with air in closed tanks with ammonia solution. Before starting hot work empty the tank and clean thoroughly before starting the work.

SECTION 3: Composition/information on ingredients

3.1 Substances : Mono-constituent substance

Product/ingredient name	Identifiers	%	Classification	Type
ammonia ... %	UK (GB) /REACH#: UK-01-9638925497-8 REACH #: 01-2119488876-14 EC : 215-647-6 CAS : 1336-21-6 Index : 007-001-01-2	32	Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 (Respiratory tract irritation) Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1]
ammonia ... %	UK (GB) /REACH#: UK-01-9638925497-8 REACH #: 01-2119488876-14 EC : 215-647-6 CAS : 1336-21-6 Index : 007-001-01-2	32	Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 (Respiratory tract irritation) Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1]

See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[1] Constituent

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Check for and remove any contact lenses. Get medical attention immediately.

Inhalation : Avoid inhalation of vapor, spray or mist. If inhaled, remove to fresh air. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If breathing is difficult, give oxygen.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Chemical burns must be treated promptly by a physician.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Wash contaminated clothing thoroughly

with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain, watering, redness

Inhalation : Adverse symptoms may include the following: respiratory tract irritation, coughing

Skin contact : Adverse symptoms may include the following: pain or irritation, blistering may occur

Ingestion : Adverse symptoms may include the following: stomach pains, Irritating to mouth, throat and stomach., May cause burns to mouth, throat and stomach.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None identified.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials: nitrogen oxides, Avoid breathing dusts, vapors or fumes from burning materials., In case of inhalation of decomposition products in a fire, symptoms may be delayed.

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : 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

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Bund storage facilities to prevent soil and water pollution in the event of spillage.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1	100 t	200 t

7.3 Specific end use(s)

Recommendations : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Remark : No exposure limit value known.

Product/ingredient name	Exposure limit values
ammonia ... %	**EH40/2005 WELs (1997-01-01).** STEL 25 mg/m3 35 ppm Form: anhydrous TWA 18 mg/m3 25 ppm Form: anhydrous

	EU OEL (2000-06-01). TWA 14 mg/m3 20 ppm STEL 36 mg/m3 50 ppm **EH40/2005 WELs (1997-01-01).** STEL 25 mg/m3 35 ppm Form: anhydrous TWA 18 mg/m3 25 ppm Form: anhydrous

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
ammonia ... %	DNEL	Short term Dermal	6.8 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	47.6 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	47.6 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	36 mg/m³	Workers	Local
	DNEL	Long term Dermal	6.8 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	14 mg/m³	Workers	Local
	DNEL	Short term Dermal	6.8 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	47.6 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	47.6 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	36 mg/m³	Workers	Local
	DNEL	Long term Dermal	6.8 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	14 mg/m³	Workers	Local

PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
ammonia ... %	PNEC	Fresh water	0.0011 mg/l	Assessment Factors
	PNEC	Marine	0.0011 mg/l	Assessment Factors
	PNEC	Fresh water	0.0011 mg/l	Assessment Factors
	PNEC	Marine	0.0011 mg/l	Assessment Factors

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : A washing facility or water for eye and skin cleaning purposes should be present. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Wash contaminated clothing before reusing.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: Tightly-fitting goggles, Europe:, CEN: EN166,

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. For general applications, we recommend gloves with a thickness typically greater than 0.35 mm. It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material.
> 8 hours (breakthrough time): butyl rubber, Viton®

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : In case of inadequate ventilation wear respiratory protection.
Recommended
full-face mask
ammonia filter (Type K)
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Personal protective equipment (Pictograms) :

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid
Color	:	Colorless.,
Odor	:	pungent, strong, ammoniacal
Odor threshold	:	5 ppm
Melting point/freezing point	:	-102 °C
Initial boiling point and boiling range	:	23 °C
Flammability	:	Non-flammable.
Upper/lower flammability or explosive limits	:	**Lower:** Not determined **Upper:** Not determined
Flash point	:	Not applicable.
Auto-ignition temperature	:	Not applicable.
Decomposition temperature	:	Not applicable.
pH	:	12.3
Viscosity	:	**Kinematic:** 1.3 mm2/s
Miscibility with water	:	Miscible in water.
Partition coefficient: n-octanol/water	:	Not applicable.
Vapor pressure	:	773 hPa @ 20 °C
Density	:	0.886 g/cm3
Relative vapour density	:	< 1 [Air = 1]
Explosive properties	:	Non-explosive.
Oxidizing properties	:	Non-oxidizer. No oxidizing ingredients present.

Particle characteristics

Median particle size	:	Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid contamination by any source including metals, dust and organic materials.

10.5 Incompatible materials : Reactive or incompatible with the following materials: acids

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Acute toxicity estimates

N/A

Irritation/Corrosion

Product/ingredient name	Method	Species	Result	Exposure
ammonia ... %				
	Eyes	Rabbit	Severe irritant	
	Eyes	Rabbit	Severe irritant	

Conclusion/Summary
Skin : Corrosive to the skin.
Eyes : Causes serious eye damage.
Respiratory : May cause respiratory irritation.

Sensitization

Conclusion/Summary
Skin : Based on available data, the classification criteria are not met.
Respiratory : Based on available data, the classification criteria are not met.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ammonia ... %	Category 3	-	Respiratory tract irritation

Information on the likely routes of exposure : Not available.

Potential acute health effects

Inhalation : May cause respiratory irritation. Vapor may be irritating to eyes and respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : May cause burns to mouth, throat and stomach.

Skin contact : Causes severe burns.

Eye contact : Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : Adverse symptoms may include the following: respiratory tract irritation, coughing

Ingestion : Adverse symptoms may include the following: stomach pains, Irritating to mouth, throat and stomach., May cause burns to mouth, throat and stomach.

Skin contact : Adverse symptoms may include the following: pain or irritation, blistering may occur

Eye contact : Adverse symptoms may include the following: pain, watering, redness

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Irritating to respiratory system.

Potential delayed effects : None identified.

Long term exposure

Potential immediate effects : Irritating to respiratory system.

Potential delayed effects : None identified.

Potential chronic health effects

Product/ingredient name	Method	Species	Result	Exposure
ammonia ... %				

	Chronic NOAEL Oral	Mammal	68 mg/kg	4 weeks
	Chronic NOAEL Oral	Mammal	68 mg/kg	4 weeks

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Other effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Method	Species	Result	Exposure
ammonia ... %				
	Acute LC50 Fresh water	Fish	0.89 mg/l	96 h
	Acute LC50 Fresh water	Daphnia	101 mg/l	48 h
	Chronic NOEC Fresh water	Daphnia	0.79 mg/l	4 d
ammonia ... %				
	Acute LC50 Fresh water	Fish	0.89 mg/l	96 h
	Acute LC50 Fresh water	Daphnia	101 mg/l	48 h
	Chronic NOEC Fresh water	Daphnia	0.79 mg/l	4 d

Conclusion/Summary : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : Readily biodegradable in plants and soils.

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
ammonia ... %	-0.64	Not applicable.	low
	-0.64	Not applicable.	low

Conclusion/Summary : No known significant effects or critical hazards.

12.4 Mobility in soil

Soil/water partition coefficient (KOC) : Not available.

Mobility : This product may move with surface or groundwater flows

because its water solubility is: high

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
ammonia ... %	Not applicable (Inorganic)	N/A	N/A	N/A	Not applicable (Inorganic)	N/A	N/A

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

Waste catalogue

Waste code	Waste designation
06 02 03*	ammonium hydroxide

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way.
Care should be taken when handling emptied containers that have not been cleaned or rinsed out.
Empty containers or liners may retain some product residues.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA

14.1 UN number	2672	2672	2672	2672
14.2 UN proper shipping name	AMMONIA SOLUTION	AMMONIA SOLUTION	AMMONIA SOLUTION	AMMONIA SOLUTION
14.3 Transport hazard class(es)	8 	8 	8 	8 
14.4 Packing group	III	III	III	III
14.5. Environmental hazards	Yes.	Yes.	Yes.	Yes.

Additional information

ADR/RID : **Hazard identification number** 80
Tunnel code (E)

ADN : **Danger code** N1

IMDG : **IMDG Code Segregation group** SG18
Emergency schedules (EmS) F-A, S-B

14.6 Special precautions for user : Transport within user's premises: Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments **Proper shipping name** : Not listed.

SECTION 15: Regulatory information

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

UK (GB) /REACH

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Ozone depleting substances

None of the components are listed.

Prior Informed Consent (PIC)

None of the components are listed.

Persistent Organic Pollutants
None of the components are listed.

EU Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Applicable, Table 3.

Seveso Directive
This product is controlled under the Seveso Directive.

Danger criteria

Category
E1

National regulations

Biocidal products regulation : Not applicable.

EU regulations

Notes : To our knowledge no other country or state specific regulations are applicable.

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms :
ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DNEL = Derived No Effect Level
DMEL = Derived Minimal Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
PBT = Persistent, Bioaccumulative and Toxic
vPvB = Very Persistent and Very Bioaccumulative
bw = Body weight

Key data sources :
EU REACH ECHA/IUCLID5 CSR.
National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda Registry of Toxic Effects of Chemical Substances.

Sphera Solutions Inc., 4777 Levy Street, St Laurent,
Quebec HAR 2P9, Canada.

Procedure used to derive the classification

Classification	Justification
Skin Corr. 1B, H314	Expert judgment
Eye Dam. 1, H318	On basis of test data
STOT SE 3, H335 (Respiratory tract irritation)	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications

Skin Corr. 1	SKIN CORROSION/IRRITATION
Skin Corr. 1B	SKIN CORROSION/IRRITATION
Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Respiratory tract irritation
Aquatic Acute 1	AQUATIC HAZARD (ACUTE)
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM)
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

Date of printing : 07.08.2023
Date of issue/ Date of revision : 02.08.2023
Date of previous issue : 00.00.0000
Version : 1.0
Prepared by : Product Stewardship and Compliance (PSC).

|| Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information provided in this Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein, since all materials may represent unknown hazards and should be used with caution. Final determination of the suitability of any material is the sole responsibility of the user.

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario/Safe Use Information:

Identification of the substance or mixture

Product definition : Mono-constituent substance

Product name : Ammonia 31,75%

Exposure Scenario/Safe Use Information : For each hazard resulting in classification relevant Exposure Scenarios are attached.

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Distribution, Formulation, 5 - 25 %
Identified use name	:	Industrial distribution. Industrial USE to formulate chemical product mixtures.
Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15
Environmental Release Category	:	ERC02
Market sector by type of chemical product	:	PC01, PC09a, PC12, PC16, PC18, PC19, PC20, PC21, PC26, PC29, PC30, PC34, PC35, PC37, PC39, PC40
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02720-1/2013-11-25

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics	:	In aqueous preparations
Concentration of substance in mixture or article	:	5 - 25 %

Amounts used	:	Annual site tonnage 1000000
Environment factors not influenced by risk management	:	Flow rate of receiving surface water (m^3/d): 20,000 Local freshwater dilution factor10 Local marine water dilution factor 10
Emission days		330
Release fraction to air from process (initial release prior to RMM)		**ERC02:** 2.5 %
Release fraction to wastewater from process (initial release prior to RMM)		**ERC02:** 2 %
Risk management measures - Water	:	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant	:	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment	:	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	5 - 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4
Area of use:	:	Indoor, Outdoor

Ventilation control measures	:	Contributing scenario: **PROC02, PROC03, PROC08b, PROC15** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC08a, PROC09** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC02, PROC03, PROC08b, PROC15** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC08a, PROC09** < 4 hours:, In case of inadequate ventilation wear respiratory protection:, > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Environment:, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	See Section 8 in SDS, PNEC. Predicted exposures are not expected to exceed the PNEC when

	the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC05 - Mixing or blending in batch processes PROC08a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities

		PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Environmental Release Category	:	ERC02 - Formulation into mixture
Market sector by type of chemical product	:	PC01 - Adhesives, sealants PC09a - Coatings and paints, thinners, paint removers PC12 - Fertilizers PC16 - Heat transfer fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC26 - Paper and board treatment products PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Industrial, 5 - 25 %
Substance supplied to that use in form of	:	As such, In a mixture
Identified uses	:	Industrial Use for flue gas NOx and SOx reduction. Industrial USE as reactive agent/processing aid and for general chemical applications (e.g. Nutrient in wastewater treatment). Industrial USE as heat transfer fluid. Industrial USE as chemical/process nutrient. Industrial USE for surface/article treatment. Does not end up onto surface. Industrial USE to manufacture specialist chemical/other products. Industrial USE as part of specialist chemicals/other products .

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08b, PROC09, PROC10, PROC13, PROC19
Environmental Release Category	:	ERC04, ERC05, ERC06b, ERC07
Market sector by type of chemical product	:	PC01, PC09a, PC14, PC15, PC16, PC20, PC26, PC29, PC30, PC34, PC35, PC37, PC39, PC40
Sector of end use	:	SU04, SU05, SU06a, SU06b, SU08, SU09, SU11, SU12, SU13, SU15, SU16, SU23, SU 0: Other: NACE B, SU 0: Other: NACE C28.2, SU 0: Other: NACE M71
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02689-1/2013-11-26

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics	:	In aqueous preparations
Concentration of substance in mixture or article	:	5 - 25 %
Amounts used	:	Annual site tonnage 25000
Environment factors not influenced by risk management	:	Flow rate of receiving surface water (m^3/d): 20,000 Local freshwater dilution factor10 Local marine water dilution factor 10
Emission days		330
Release fraction to air from process (initial release prior to RMM)		**ERC04:** 95 % **ERC05:** 50 % **ERC06b:** 0.1 % **ERC07:** 5 %

Release fraction to wastewater from process (initial release prior to RMM)		**ERC04:** 100 % **ERC05:** 50 % **ERC06b:** 5 % **ERC07:** 5 %
Risk management measures - Water	:	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant	:	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment	:	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	5 - 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4
Area of use:	:	Indoor, Outdoor
Ventilation control measures	:	Contributing scenario: **PROC07** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC19** Not applicable. Contributing scenario: **PROC02, PROC03, PROC04, PROC08b** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC09, PROC10, PROC13** Local exhaust ventilation should be provided. Treatment effectiveness > 90 %

Contributing scenario: **PROC01**
No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection : Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection.
Treatment effectiveness > 90 %

See Section 8 of the safety data sheet (personal protective equipment).

Respiratory protection : Contributing scenario: **PROC07**
< 4 hours:, In case of inadequate ventilation wear respiratory protection., > 4 hours:, Indoor, Wear appropriate respiratory protection., Treatment effectiveness > 95 %

Contributing scenario: **PROC19**
Wear appropriate respiratory protection., Treatment effectiveness > 95 %

Contributing scenario: **PROC02, PROC03, PROC04, PROC08b**
In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 %

Contributing scenario: **PROC05, PROC09, PROC10, PROC13**
< 4 hours:, In case of inadequate ventilation wear respiratory protection:, > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 %

Contributing scenario: **PROC01**
No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website: : Environment:, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses

Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment): : EUSES

Exposure estimation and : See Section 8 in SDS, PNEC.

reference to its source	Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure arises PROC05 - Mixing or blending in batch processes PROC07 - Industrial spraying

		PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC19 - Manual activities involving hand contact
Environmental Release Category	:	ERC04 - Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC05 - Use at industrial site leading to inclusion into/onto article ERC06b - Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC07 - Use of functional fluid at industrial site
Market sector by type of chemical product	:	PC01 - Adhesives, sealants PC09a - Coatings and paints, thinners, paint removers PC14 - Metal surface treatment products PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC26 - Paper and board treatment products PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents
Sector of end use	:	SU04 - Manufacture of food products SU05 - Manufacture of textiles, leather, fur SU06a - Manufacture of wood and wood products SU06b - Manufacture of pulp, paper and paper products SU08 - Manufacture of bulk, large scale chemicals (including petroleum products) SU09 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products, e.g. plasters, cement SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU23 - Electricity, steam, gas water supply and sewage treatment SU 0: Other: NACE B - Mining and quarrying SU 0: Other: NACE C28.2 - Manufacture of other general-purpose machinery SU 0: Other: NACE M71 - Architectural and engineering activities;

technical testing and analysis

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Industrial, Use as an intermediate, 5 - 25 %
Identified use name	:	Industrial USE as chemical intermediate.
Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15
Environmental Release Category	:	ERC06a
Market sector by type of chemical product	:	PC19
Sector of end use	:	SU01, SU05, SU08, SU09, SU12, SU24, SU 0: Other: NACE C21
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02704-1/2013-11-26

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics	:	In aqueous preparations
Concentration of substance in mixture or article	:	5 - 25 %
Amounts used	:	Annual site tonnage 800000
Environment factors not influenced by risk management	:	Local freshwater dilution factor10 Local marine water dilution factor 10
Emission days		330
Release fraction to air from process (initial release prior to RMM)		**ERC06a:** 5 %
Release fraction to wastewater from process (initial release prior to RMM)		**ERC06a:** 2 %
Risk management measures - Water	:	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant	:	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment	:	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	5 - 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of	:	Unless otherwise stated. Use duration (h/d): > 4

use

Area of use:	:	Indoor, Outdoor
Ventilation control measures	:	Contributing scenario: **PROC05, PROC09** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC05, PROC09** < 4 hours:, In case of inadequate ventilation wear respiratory protection:, > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Environment, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses, Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure

		arises PROC05 - Mixing or blending in batch processes PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Environmental Release Category	:	ERC06a - Use of intermediate
Market sector by type of chemical product	:	PC19 - Intermediate
Sector of end use	:	SU01 - Agriculture, forestry, fishery SU05 - Manufacture of textiles, leather, fur SU08 - Manufacture of bulk, large scale chemicals (including petroleum products) SU09 - Manufacture of fine chemicals SU12 - Manufacture of plastics products, including compounding and conversion SU24 - Scientific research and development SU 0: Other: NACE C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Professional, Industrial, 5 - 25 %
Identified use name	:	Professional formulation of mixtures. Professional USE as chemical/process nutrient. Professional USE as reactive agent/processing aid and for general chemical applications. Professional USE as a laboratory/research chemical. Professional USE as heat transfer fluid. Professional USE for surface/article treatment. Does not end up onto surface. Professional USE as part of specialist chemicals/other products. Professional USE as photochemical.

Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC10, PROC11, PROC13, PROC15, PROC19, PROC20
Environmental Release Category	:	ERC08b, ERC08e, ERC09a, ERC09b
Market sector by type of chemical product	:	PC09a, PC12, PC14, PC15, PC16, PC19, PC20, PC21, PC29, PC30, PC34, PC35, PC37, PC40
Sector of end use	:	SU01, SU04, SU05, SU06a, SU06b, SU09, SU10, SU11, SU12, SU15, SU16, SU17, SU23, SU24, SU 0: Other: NACE B, SU 0: Other: NACE C28.2, SU 0: Other: NACE M71
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02703-1/2013-11-26

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for: All

Contains substances occurring naturally in surface waters., No exposure assessment presented for the environment., Not applicable for wide dispersive uses

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	5 - 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4

Area of use:	:	Indoor, Outdoor
Ventilation control measures	:	Contributing scenario: **PROC11** Indoor use, Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC19** Not applicable. Contributing scenario: **PROC05, PROC08a, PROC09, PROC10, PROC13** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15, PROC20** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC11** Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC19** Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC08a, PROC09, PROC10, PROC13** < 4 hours:, In case of inadequate ventilation wear respiratory protection:, > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15, PROC20** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC01**

No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website: : Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Workers:

Exposure assessment (human): : Used ECETOC TRA model.

Exposure estimation and reference to its source : See Section 8 in SDS, DNEL.

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category : PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC04 - Chemical production where opportunity for exposure arises

		PROC05 - Mixing or blending in batch processes PROC08a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent PROC19 - Manual activities involving hand contact PROC20 - Use of functional fluids in small devices
Environmental Release Category	:	ERC08b - Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC08e - Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC09a - Widespread use of functional fluid (indoor) ERC09b - Widespread use of functional fluid (outdoor)
Market sector by type of chemical product	:	PC09a - Coatings and paints, thinners, paint removers PC12 - Fertilizers PC14 - Metal surface treatment products PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC19 - Intermediate PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC40 - Extraction agents
Sector of end use	:	SU01 - Agriculture, forestry, fishery SU04 - Manufacture of food products SU05 - Manufacture of textiles, leather, fur SU06a - Manufacture of wood and wood products SU06b - Manufacture of pulp, paper and paper products SU09 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment

	SU17 - General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU23 - Electricity, steam, gas water supply and sewage treatment SU24 - Scientific research and development SU 0: Other: NACE B - Mining and quarrying SU 0: Other: NACE C28.2 - Manufacture of other general-purpose machinery SU 0: Other: NACE M71 - Architectural and engineering activities; technical testing and analysis

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario : Yara - Ammonia ... % - Distribution, Formulation, > 25 %

Identified use name : Industrial distribution.
Industrial USE to formulate chemical product mixtures.

Substance supplied to that use in form of : As such, In a mixture

List of use descriptors

Process Category : PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC15

Environmental Release Category : ERC02

Market sector by type of chemical product : PC01, PC09a, PC12, PC16, PC18, PC19, PC20, PC21, PC26, PC29, PC30, PC34, PC35, PC37, PC39, PC40

Subsequent service life relevant for that use : No.

Number of the ES : 0000000006529-1/2017-06-12

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics	:	In aqueous preparations
Concentration of substance in mixture or article	:	> 25 %
Amounts used	:	Annual site tonnage 1000000
Environment factors not influenced by risk management	:	Flow rate of receiving surface water (m^3/d): 20,000 Local freshwater dilution factor10 Local marine water dilution factor 10
Emission days		330
Release fraction to air from process (initial release prior to RMM)		**ERC02:** 2.5 %
Release fraction to wastewater from process (initial release prior to RMM)		**ERC02:** 2 %
Risk management measures - Water	:	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant	:	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment	:	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	> 25 %

Physical state	:	Liquid. aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4
Area of use:	:	Indoor, Outdoor
Ventilation control measures	:	Contributing scenario: **PROC02, PROC03, PROC08b, PROC15** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC08a, PROC09** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC02, PROC03, PROC08b, PROC15** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC08a, PROC09** < 4 hours:, In case of inadequate ventilation wear respiratory protection., > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Environment:, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses

Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	See Section 8 in SDS, PNEC. Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous

		process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC05 - Mixing or blending in batch processes PROC08a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Environmental Release Category	:	ERC02 - Formulation into mixture
Market sector by type of chemical product	:	PC01 - Adhesives, sealants PC09a - Coatings and paints, thinners, paint removers PC12 - Fertilizers PC16 - Heat transfer fluids PC18 - Ink and toners PC19 - Intermediate PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC26 - Paper and board treatment products PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Industrial, > 25 %

Identified use name	:	Industrial Use for flue gas NOx and SOx reduction. Industrial USE as reactive agent/processing aid and for general chemical applications (e.g. Nutrient in wastewater treatment). Industrial USE as heat transfer fluid. Industrial USE as chemical/process nutrient. Industrial USE for surface/article treatment. Does not end up onto surface. Industrial USE to manufacture specialist chemical/other products. Industrial USE as part of specialist chemicals/other products .
Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC13
Environmental Release Category	:	ERC04, ERC05, ERC06b, ERC07
Market sector by type of chemical product	:	PC01, PC09a, PC14, PC15, PC16, PC20, PC26, PC29, PC30, PC34, PC35, PC37, PC39, PC40
Sector of end use	:	SU04, SU05, SU06a, SU06b, SU08, SU09, SU11, SU12, SU13, SU15, SU16, SU23, SU 0: Other: NACE B, SU 0: Other: NACE C, SU 0: Other: NACE C28.2
Subsequent service life relevant for that use	:	No.

Number of the ES	:	0000000006530-1/2017-06-12

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics	:	In aqueous preparations
Concentration of substance in mixture or article	:	> 25 %
Amounts used	:	Annual site tonnage 25000
Environment factors not influenced by risk management	:	Flow rate of receiving surface water (m^3/d): 20,000 Local freshwater dilution factor10 Local marine water dilution factor 10

Emission days	330
Release fraction to air from process (initial release prior to RMM)	**ERC04:** 95 % **ERC05:** 50 % **ERC06b:** 0.1 % **ERC07:** 5 %
Release fraction to wastewater from process (initial release prior to RMM)	**ERC04:** 100 % **ERC05:** 50 % **ERC06b:** 5 % **ERC07:** 5 %
Risk management measures - Water :	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant :	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment :	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article :	> 25 %
Physical state :	Liquid. aqueous preparations
Frequency and duration of use :	Unless otherwise stated. Use duration (h/d): > 4
Area of use: :	Indoor, Outdoor
Ventilation control :	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b**

measures	Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC09, PROC13** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC09, PROC13** < 4 hours:, In case of inadequate ventilation wear respiratory protection., > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Environment:, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES
Exposure estimation and reference to its source	:	See Section 8 in SDS, PNEC. Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined

in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure arises PROC05 - Mixing or blending in batch processes PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers

		(dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring
Environmental Release Category	:	ERC04 - Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC05 - Use at industrial site leading to inclusion into/onto article ERC06b - Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC07 - Use of functional fluid at industrial site
Market sector by type of chemical product	:	PC01 - Adhesives, sealants PC09a - Coatings and paints, thinners, paint removers PC14 - Metal surface treatment products PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC26 - Paper and board treatment products PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents
Sector of end use	:	SU04 - Manufacture of food products SU05 - Manufacture of textiles, leather, fur SU06a - Manufacture of wood and wood products SU06b - Manufacture of pulp, paper and paper products SU08 - Manufacture of bulk, large scale chemicals (including petroleum products) SU09 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products, e.g. plasters, cement SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU23 - Electricity, steam, gas water supply and sewage treatment SU 0: Other: NACE B - Mining and quarrying SU 0: Other: NACE C - Manufacturing SU 0: Other: NACE C28.2 - Manufacture of other general-purpose machinery

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario : Yara - Ammonia ... % - Industrial, Use as an intermediate, > 25 %

Identified use name : Industrial USE as chemical intermediate.

Substance supplied to that use in form of : As such, In a mixture

List of use descriptors

Process Category : PROC01, PROC02, PROC03, PROC04, PROC05, PROC08b, PROC09, PROC15

Environmental Release Category : ERC06a

Market sector by type of chemical product : PC19

Sector of end use : SU01, SU05, SU08, SU09, SU12, SU24, SU 0: Other: NACE C21

Subsequent service life relevant for that use : No.

Number of the ES : 0000000006485-1/2017-06-13

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for:

Product characteristics : In aqueous preparations

Concentration of substance in mixture or article : > 25 %

Amounts used	:	Annual site tonnage 800000
Environment factors not influenced by risk management	:	Flow rate of receiving surface water (m^3/d): 20,000 Local freshwater dilution factor10 Local marine water dilution factor 10
Emission days		330
Release fraction to air from process (initial release prior to RMM)		**ERC06a:** 5 %
Release fraction to wastewater from process (initial release prior to RMM)		**ERC06a:** 2 %
Risk management measures - Water	:	Waste water treatment: Treatment effectiveness 99.9 %
Conditions and measures related to sewage treatment plant	:	Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Suitable waste treatment	:	Biological nitrogen elimination

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	> 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4
Area of use:	:	Indoor, Outdoor

Ventilation control measures	:	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC09** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC09** < 4 hours:, In case of inadequate ventilation wear respiratory protection., > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Environment:, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment):	:	EUSES

Exposure estimation and reference to its source	:	See Section 8 in SDS, PNEC. Predicted exposures are not expected to exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, EUSES v2.1
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure arises

		PROC05 - Mixing or blending in batch processes PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
Environmental Release Category	:	ERC06a - Use of intermediate
Market sector by type of chemical product	:	PC19 - Intermediate
Sector of end use	:	SU01 - Agriculture, forestry, fishery SU05 - Manufacture of textiles, leather, fur SU08 - Manufacture of bulk, large scale chemicals (including petroleum products) SU09 - Manufacture of fine chemicals SU12 - Manufacture of plastics products, including compounding and conversion SU24 - Scientific research and development SU 0: Other: NACE C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - Ammonia ... % - Professional, Industrial, > 25 %
Sector identified and supplied to that	:	Professional formulation of mixtures. Professional USE as chemical/process nutrient. Professional USE as reactive agent/processing aid and for general chemical applications. Professional USE as a laboratory/research chemical. Professional USE as heat transfer fluid. Professional USE for surface/article treatment. Does not end up onto surface. Professional USE as part of specialist chemicals/other products. Professional USE as photochemical.

use in form of

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC13, PROC15, PROC20
Environmental Release Category	:	ERC08b, ERC08e, ERC09a, ERC09b
Market sector by type of chemical product	:	PC09a, PC12, PC14, PC15, PC16, PC19, PC20, PC21, PC29, PC30, PC34, PC35, PC37, PC40
Sector of end use	:	SU01, SU04, SU05, SU06a, SU06b, SU09, SU10, SU11, SU12, SU15, SU16, SU17, SU23, SU24, SU 0: Other: NACE B, SU 0: Other: NACE C, SU 0: Other: NACE C28.2
Subsequent service life relevant for that use	:	No.

Number of the ES	:	000000006486-1/2017-06-13

Section 2 — Exposure controls

Contributing scenario controlling environmental exposure for: All

Contains substances occurring naturally in surface waters., No exposure assessment presented for the environment., Not applicable for wide dispersive uses

Contributing scenario controlling worker exposure for:

Concentration of substance in mixture or article	:	> 25 %
Physical state	:	Liquid aqueous preparations
Frequency and duration of use	:	Unless otherwise stated. Use duration (h/d): > 4
Area of use:	:	Indoor, Outdoor
Ventilation control	:	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b,**

measures	**PROC15, PROC20** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC05, PROC08a, PROC09, PROC13** Local exhaust ventilation should be provided. Treatment effectiveness > 90 % Contributing scenario: **PROC01** No special ventilation requirements.

Conditions and measures related to personal protection and hygiene

Personal protection	:	Causes severe skin burns and eye damage., Wear protective gloves/clothing and eye/face protection. Treatment effectiveness > 90 % See Section 8 of the safety data sheet (personal protective equipment).
Respiratory protection	:	Contributing scenario: **PROC02, PROC03, PROC04, PROC08b, PROC15, PROC20** In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 % Contributing scenario: **PROC05, PROC08a, PROC09, PROC13** < 4 hours:, In case of inadequate ventilation wear respiratory protection., > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 % Contributing scenario: **PROC01** No personal respiratory protective equipment normally required.

Section 3 — Exposure estimation and reference to its source

Website:	:	Workers:, ECETOC TRA worker v2.0, http://www.ecetoc.org/

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Used ECETOC TRA model.
Exposure estimation and reference to its source	:	See Section 8 in SDS, DNEL. Predicted exposures are not expected to exceed the DN(M)EL

when the risk management measures/operational conditions outlined in section 2 are implemented.

Section 4 — Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	:	Not applicable.
Health	:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures., For scaling, see, ECETOC TRA.

Abbreviations and acronyms

Process Category	:	PROC01 - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC02 - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC03 - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC04 - Chemical production where opportunity for exposure arises PROC05 - Mixing or blending in batch processes PROC08a - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC08b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC09 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent PROC20 - Use of functional fluids in small devices
Environmental Release Category	:	ERC08b - Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC08e - Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC09a - Widespread use of functional fluid (indoor) ERC09b - Widespread use of functional fluid (outdoor)

Market sector by type of chemical product	:	PC09a - Coatings and paints, thinners, paint removers PC12 - Fertilizers PC14 - Metal surface treatment products PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC19 - Intermediate PC20 - Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes and impregnating products PC35 - Washing and cleaning products PC37 - Water treatment chemicals PC40 - Extraction agents
Sector of end use	:	SU01 - Agriculture, forestry, fishery SU04 - Manufacture of food products SU05 - Manufacture of textiles, leather, fur SU06a - Manufacture of wood and wood products SU06b - Manufacture of pulp, paper and paper products SU09 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU23 - Electricity, steam, gas water supply and sewage treatment SU24 - Scientific research and development SU 0: Other: NACE B - Mining and quarrying SU 0: Other: NACE C - Manufacturing SU 0: Other: NACE C28.2 - Manufacture of other general-purpose machinery