

Safety Data Sheet

according to reg. 1907/2006 / EC, Art. 31

CLEANING SOLUTION A2000

Safety Data Sheet dated 24/1/2018, version 2

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

1.1. Product identifier

Identification of the substance:

Trade name: CLEANING SOLUTION A2000

CAS number: 1336-21-6

EC number: 215-647-6

Index number: 007-001-01-2

REACH number: 01-211948876-14

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

Recommended use:

Industrial use

Professional use

Refere to Exposure Scenario attached

Uses advised against:

Do not use for uses other than those indicated in the attached Exposure

Scenarios 1.3. Details of the supplier of the safety data sheet

Company:

ASTORI TECNICA S.r.l.

Via Stelle, 11

25020 Poncarale (BS) - Italy

Tel.: +39 030 2540240

Fax: +39 030 2640812

Web: www.astorioscar.com

Competent person responsible for the safety data sheet:

admin@astorioscar.com

1.4. Emergency telephone number

TORCHIANI S.r.l.

Via G.B. Cacciamali n.45

25125 Brescia

Tel.: 0303511411

Fax: 0303511444

Web: www.torchiani.com

h 8.00-12.00 14.00-18.00

Assistant National Services

<https://echa.europa.eu/support/helpdesks>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

Skin Corr. 1B, H314 Causes severe skin burns and eye damage.

STOT SE 3, H335 May cause respiratory irritation.

Aquatic Acute 1, H400 Very toxic to aquatic life.

Aquatic Chronic 2, H411 Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:



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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:

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/clothing and eye/face protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water or 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.

P310 EU4\$P310.1

P391 Collect spillage.

P501 Dispose of the product / container in accordance with local regulations.

Special Provisions:

None

Contains

ammonia%

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Identification of the substance:

Chemical characterization: ammonia%

CAS number: 1336-21-6

EC number: 215-647-6

REACH number: 01-2119488876-14

Qty	Name	Ident. Number	Classification	Additional info
>= 30% - < 40%	ammonia%	Index number: 007-001-01-2 CAS: 1336-21-6 EC: 215-647-6 REACH No.: 01-2119488876-14	3.2/1B Skin Corr. 1B H314 3.8/3 STOT SE 3 H335 4.1/A1 Aquatic Acute 1 H400 4.1/C2 Aquatic Chronic 2 H411	Note: N.A.

3.2. Mixtures

N.A.

SECTION 4: First aid measures

4.1. Description of first aid measures

Self-protection of those who give first aid.

If you are unwell consult a physician.

In case of skin contact:

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Immediately take off all contaminated clothing.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do NOT induce vomiting.

In case of Inhalation:

In case of inhalation, consult a doctor immediately and show him packing or label. 4.2. Most important symptoms and effects, both acute and delayed

Burns

Serious eye injuries

Cough

Burning in the mouth, throat and stomach

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

Show this Safety Data Sheet

In case of ingestion or inhalation of large quantities, immediately contact a Poison Center In case of high levels of exposure consult a physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Use a suitable extinguishing medium for the surrounding fire

Extinguishing media which must not be used for safety reasons:

No element identified

5.2. Special hazards arising from the substance or mixture Do not inhale explosion and combustion gases. Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

Bring people in a safe place

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Provide adequate ventilation.

Use appropriate respiratory protection.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

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6.3. Methods and material for containment and cleaning up

Wash with plenty of water.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Use localized ventilation system.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Avoid exposure to direct sunlight

Keep it in locked area

Store separately from food

Read the label before use

Store in adequately ventilated areas

Store only in original packaging

Keep away from food, drink and feed.

Incompatible materials:

Please refer also to Section 10.

Instructions as regards storage premises:

Adequately ventilated premises.

7.3. Specific end use(s)

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

ammonia% - CAS: 1336-21-6

- OEL Type: OEL - TWA: 14 mg/m3, 20 ppm - Notes: EU OEL (2000-06-1)

- OEL Type: OEL - STEL: 36 mg/m3, 50 ppm - Notes: EU OEL (2000-06-

1) DNEL Exposure Limit Values

ammonia% - CAS: 1336-21-6

Worker Professional: 6.8 mg/kg - Exposure: Human Dermal - Frequency: Short Term, systemic effects - Notes: giorno

Worker Professional: 47.6 mg/m3 - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

Worker Professional: 47.6 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Worker Professional: 36 mg/m3 - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Professional: 6.8 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects

PNEC Exposure Limit Values ammonia

....% - CAS: 1336-21-6

Target: Fresh Water - Value: 0.0011 mg/l

Target: Marine water - Value: 0.0011

mg/l 8.2. Exposure controls

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Eye protection:

Protective glasses with side protection (EN 166)

Full face mask (CEN: EN 136)

Protection for skin:

Safety shoes.

Overall.

Chemical protection clothing.

Protection for hands:

Chemical resistant protective gloves (EN374-1 / EN374-2 / EN374-3).

Thickness > 0.35 mm

Permeation time: > = 8 hours

Butyl caoutchouc (butyl rubber).

Viton

Respiratory protection:

Full-face mask (DIN EN 136).

Mask with filter "K", green colour

Thermal Hazards:

None

Environmental exposure controls:

In case of pollution of rivers, lakes or sewers, inform the competent authorities in accordance with local laws

Emissions from ventilation equipment must be checked to ensure they comply with the applicable regulations

Do not discharge the flush into surface water or sanitary sewer systems.

Appropriate engineering controls:

Ensure the presence of lava eyes and emergency showers near the workstations

Ensure adequate local ventilation or the presence of localized suction sources

Use fences, ventilation systems

Premises or other engineering controls to keep the operators exposed to airborne pollutants below any recommended or prescribed limits.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes
Appearance and colour:	Colorless liquid	--	--
Odour:	Characteristic	--	--
Odour threshold:	5 ppm	--	--
pH:	12,3	--	--
Melting point / freezing point:	-87°C	--	--
Initial boiling point and boiling range:	27°C	--	--

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Flash point:	Not determined °C	--	--
Evaporation rate:	Not determined	--	--
Solid/gas flammability:	Not Inflammable	--	--
Upper/lower flammability or explosive limits:	Not determined	--	--
Vapour pressure:	659 hPa	--	--
Vapour density:	Not determined	--	--
Relative density:	0.892 g/cm3	--	--
Solubility in water:	Soluble	--	--
Solubility in oil:	No data available	--	--
Partition coefficient (n-octanol/water):	Not determined	--	--
Auto-ignition temperature:	Not determined	--	--
Decomposition temperature:	Not determined	--	--
Viscosity:	Cinematic : 1.3 mm2/s	--	--
Explosive properties:	None	--	--
Oxidizing properties:	None	--	--

9.2. Other information

Properties	Value	Method:	Notes
Miscibility:	Not available	--	--
Fat Solubility:	Not available	--	--
Conductivity:	Not available	--	--
Substance Groups relevant properties	Not available	--	--
VOC:	--	--	--

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SECTION 10: Stability and reactivity

- 10.1. Reactivity
Stable under normal conditions
- 10.2. Chemical stability
Stable under normal conditions
- 10.3. Possibility of hazardous reactions
None
- 10.4. Conditions to avoid
Avoid exposing the product to high temperatures
Contact with metals
Keep away from naked flames, hot surfaces and ignition sources Incompatibles materials
- 10.5. Incompatible materials
Acids
- 10.6. Hazardous decomposition products
Thermal decomposition or fire may liberate gases and vapors potentially harmful to health

SECTION 11: Toxicological information

- 11.1. Information on toxicological effects
Toxicological information of the product:
ammonia% - CAS: 1336-21-6
 - a) acute toxicity Not classified
Based on available data, the classification criteria are not met
 - b) skin corrosion/irritation
 - c) serious eye damage/irritation
Not classified
Based on available data, the classification criteria are not met
 - d) respiratory or skin sensitisation
 - e) germ cell mutagenicity
Not classified
Based on available data, the classification criteria are not met
 - f) carcinogenicity
 - g) reproductive toxicity
Not classified
Based on available data, the classification criteria are not met
 - h) STOT-single exposure
 - i) STOT-repeated exposure
Not classified
Based on available data, the classification criteria are not met
 - j) aspiration hazard
Not classified
Based on available data, the classification criteria are not met
- Toxicological information of the main substances found in the product:
N.A.

SECTION 12: Ecological information

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12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment. ammonia% - CAS: 1336-21-6

The product is classified: Aquatic Acute 1 - H400; Aquatic Chronic 2 -

H411 a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish = 0.89 mg/l - Duration h: 96 - Notes: IUCLID 5

Endpoint: LC50 - Species: Daphnia (Water flea) = 101 mg/l - Duration h: 48 - Notes: IUCLID 5

b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia (Water flea) = 0.79 mg/l - Duration h: 96 - Notes: IUCLID 5

12.2. Persistence and degradability

ammonia% - CAS: 1336-21-6

Biodegradability: Biodegradable - Test: N.A. - Duration h: N.A. - %: N.A. - Notes:

N.A. 12.3. Bioaccumulative potential

ammonia% - CAS: 1336-21-6

N.A.Test: LogPow -0.64 - Duration h: N.A. - Notes:

bassa 12.4. Mobility in soil

ammonia% - CAS: 1336-21-6

High - Test: KOC 13.8 - Duration h: N.A. - Notes: N.A.

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances:

None 12.6. Other adverse effects

None

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

Additional disposal information:

The waste codes must be assigned by the user according to the application that has been made of this product

SECTION 14: Transport information



14.1. UN number

ADR-UN Number: 2672

IATA-UN Number: 2672

IMDG-UN Number: 2672

14.2. UN proper shipping name

ADR-Shipping Name: AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia

IATA-Shipping Name: AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia

IMDG-Shipping Name: AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia

14.3. Transport hazard class(es)

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ADR-Class:	8
ADR - Hazard identification number:	80
IATA-Class:	8
IATA-Label:	8
IMDG-Class:	8
14.4. Packing group	
ADR-Packing Group:	III
IATA-Packing group:	III
IMDG-Packing group:	III
14.5. Environmental hazards	
ADR-Environmental Pollutant:	Yes
IMDG-Marine pollutant:	Marine Pollutant
14.6. Special precautions for user	
ADR-Subsidiary risks:	-
ADR-S.P.:	543
ADR-Transport category (Tunnel restriction code):	3 (E)
IATA-Passenger Aircraft:	852
IATA-Subsidiary risks:	-
IATA-Cargo Aircraft:	856
IATA-S.P.:	A64 A803
IATA-ERG:	8L
IMDG-EmS:	F-A , S-B
IMDG-Subsidiary risks:	-
IMDG-Stowage and handling:	Category A SW2 SW5
IMDG-Segregation:	SG35
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code	
N.A.	

SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
- Dir. 98/24/EC (Risks related to chemical agents at work)
 - Dir. 2000/39/EC (Occupational exposure limit values)
 - Regulation (EC) n. 1907/2006 (REACH)
 - Regulation (EC) n. 1272/2008 (CLP)
 - Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013 Regulation (EU) 2015/830
 - Regulation (EU) n. 286/2011 (ATP 2 CLP)
 - Regulation (EU) n. 618/2012 (ATP 3 CLP)
 - Regulation (EU) n. 487/2013 (ATP 4 CLP)
 - Regulation (EU) n. 944/2013 (ATP 5 CLP)
 - Regulation (EU) n. 605/2014 (ATP 6 CLP)
 - Regulation (EU) n. 2015/1221 (ATP 7 CLP)
 - Regulation (EU) n. 2016/918 (ATP 8 CLP)
 - Regulation (EU) n. 2016/1179 (ATP 9 CLP)
- Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:
- Restrictions related to the product:
 - Restriction 3
 - Restrictions related to the substances contained:
 - No restriction.
- Where applicable, refer to the following regulatory provisions :
- Directive 2012/18/EU (Seveso III)
 - Regulation (EC) nr 648/2004 (detergents).
 - Dir. 2004/42/EC (VOC directive)

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Provisions related to directive EU 2012/18 (Seveso III):
 Seveso III category according to Annex 1, part 1
 Product belongs to category: E1, E2

15.2. Chemical safety assessment
 Substances for which a Chemical Safety Assessment has been carried out:
 ammonia%

SECTION 16: Other information

Full text of phrases referred to in Section 3:
 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.

Hazard class and hazard category	Code	Description
Skin Corr. 1B	3.2/1B	Skin corrosion, Category 1B
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2

Paragraphs modified from the previous revision:

SECTION 2: Hazards identification
 SECTION 3: Composition/information on ingredients
 SECTION 8: Exposure controls/personal protection
 SECTION 11: Toxicological information
 SECTION 12: Ecological information
 SECTION 15: Regulatory information

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Skin Corr. 1B, H314	Calculation method
STOT SE 3, H335	Calculation method
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 2, H411	Calculation method

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This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

Web Site ECHA Agency

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

Section 1 — Title

Short title of the exposure scenario : 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
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Section 2 — Exposure controls

Contributing exposure 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

Environmental factors not influenced by risk management : Flow rate of receiving surface water (m3/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 municipal 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 exposure 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, hygiene and health evaluation

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 v2.0 Worker, <http://www.ecetoc.org/>**

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment): : **Used EUSES model.**
Exposure estimation : **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 : **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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15 - Use a laboratory reagent
Environmental Release Category	: ERC02 - Formulation of preparations
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 - Products such as ph-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC26 - Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents

Section 1 — Title

Short title of the exposure scenario	: Ammonia ... % - Industrial, 5 - 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. Industrial USE as heat transfer fluid. Industrial USE as chemical/process nutrient. Industrial USE for surface/article treatment. 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, 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
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Section 2 — Exposure controls

Contributing exposure 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

Environmental factors not influenced by risk management	: Flow rate of receiving surface water (m3/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 municipal 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 exposure 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, hygiene and health evaluation

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 v2.0 Worker, <http://www.ecetoc.org/>

Exposure estimation and reference to its source - Environment:

Exposure assessment (environment): : **Used EUSES model.**

Exposure estimation : **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 : 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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC07 - Spraying in industrial settings and applications PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing of adhesive and other coating PROC13 - Treatment of articles by dipping and pouring PROC19 - Hand-mixing with intimate contact and only PPE available
Environmental Release Category	: ERC04 - Industrial use of processing aids in processes and products, not becoming part of articles ERC05 - Industrial

use resulting in
inclusion into or onto
a matrix ERC06b -
Industrial use of
reactive processing
aids

ERC07 - Industrial use of substances in closed systems

Market sector by type of chemical product

- : PC01 - Adhesives, sealants**
 - PC09a - Coatings and paints, thinners, paint removers**
 - PC14 - Metal surface treatment products, including galvanic and electroplating products**
 - PC15 - Non-metal surface treatment products**
 - PC16 - Heat transfer fluids**
 - PC20 - Products such as ph-regulators, flocculants, precipitants, neutralization agents**
 - PC26 - Paper and board dye, finishing and impregnation products: including bleaches and other processing aids**
 - PC29 - Pharmaceuticals**
 - PC30 - Photo-chemicals**
 - PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids**
 - PC35 - Washing and cleaning products (including solvent based 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**

Section 1 — Title

Short title of the exposure scenario : 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
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Section 2 — Exposure controls

Contributing exposure 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
Environmental factors not influenced by risk management : Local freshwater dilution factor10
Local marine water dilution factor 10

Emission days 330

Release fraction to air from ERC06a: 5 %

process (initial release prior to RMM)

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 municipal 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 exposure 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: 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, hygiene and health evaluation

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	<p>: Contributing Scenario: PROC05, PROC09 < 4 hours:, In case of inadequate ventilation wear respiratory protection:, > 4 hours:, Wear appropriate respiratory protection., Treatment effectiveness > 95 %</p> <p>Contributing Scenario: PROC02, PROC03, PROC04, PROC08b, PROC15 In case of inadequate ventilation wear respiratory protection:, Treatment effectiveness > 95 %</p> <p>Contributing Scenario: PROC01 No personal respiratory protective equipment normally required.</p>
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Section 3 — Exposure estimation and reference to its source

Website:	<p>: Environment, EUSES v2.1, http://ihcp.jrc.ec.europa.eu/our_activities/public-health/risk_assessment_of_Biocides/euses, Workers:, ECETOC TRA v2.0 Worker, http://www.ecetoc.org/</p>
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Exposure estimation and reference to its source - Environment:	
Exposure assessment (environment):	: Used EUSES model.
Exposure estimation	: 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	: 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 Downstream User to evaluate if 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	<ul style="list-style-type: none">: PROC01 - Use in closed process, no likelihood of exposurePROC02 - Use in closed, continuous process with occasional controlled exposurePROC03 - Use in closed batch process (synthesis or formulation)PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arisesPROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilitiesPROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)PROC15 - Use a laboratory reagent
Environmental Release Category	<ul style="list-style-type: none">: ERC06a - Industrial use resulting in manufacture of another substance (use of intermediates)
Market sector by type of chemical product Sector of end use	<ul style="list-style-type: none">: PC19 - Intermediate: SU01 - Agriculture, forestry, fisherySU05 - Manufacture of textiles, leather, furSU08 - Manufacture of bulk, large scale chemicals (including petroleum products)SU09 - Manufacture of fine chemicalsSU12 - Manufacture of plastics products, including compounding and conversionSU24 - Scientific research and developmentSU 0: Other: NACE C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations

Section 1 — Title

Short title of the exposure scenario

: 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.
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 exposure 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 exposure 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, hygiene and health evaluation

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

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 v2.0 Worker, <http://www.ecetoc.org/>

Exposure estimation and reference to its source - Workers:

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

Exposure estimation : 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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure
PROC02 - Use in closed, continuous process with occasional controlled exposure
PROC03 - Use in closed batch process (synthesis or formulation)
PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

	<p>PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10 - Roller application or brushing of adhesive and other coating</p> <p>PROC11 - Spraying outside industrial settings and/or applications</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC15 - Use a laboratory reagent</p> <p>PROC19 - Hand-mixing with intimate contact and only PPE available</p> <p>PROC20 - Heat and pressure transfer fluids in dispersive use but closed systems</p>
Environmental Release Category	<p>: ERC08b - Wide dispersive indoor use of reactive substances in open systems</p> <p>ERC08e - Wide dispersive outdoor use of reactive substances in open systems</p> <p>ERC09a - Wide dispersive indoor use of substances in closed systems</p> <p>ERC09b - Wide dispersive outdoor use of substances in closed systems</p>
Market sector by type of chemical product	<p>: PC09a - Coatings and paints, thinners, paint removers</p> <p>PC12 - Fertilizers</p> <p>PC14 - Metal surface treatment products, including galvanic and electroplating products</p> <p>PC15 - Non-metal surface treatment products</p> <p>PC16 - Heat transfer fluids</p> <p>PC19 - Intermediate</p> <p>PC20 - Products such as ph-regulators, flocculants, precipitants, neutralization agents</p> <p>PC21 - Laboratory chemicals</p> <p>PC29 - Pharmaceuticals</p> <p>PC30 - Photo-chemicals</p> <p>PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids</p> <p>PC35 - Washing and cleaning products (including solvent based products)</p> <p>PC37 - Water treatment chemicals</p> <p>PC40 - Extraction agents</p>
Sector of end use	<p>: SU01 - Agriculture, forestry, fishery</p> <p>SU04 - Manufacture of food products</p> <p>SU05 - Manufacture of textiles, leather, fur</p> <p>SU06a - Manufacture of wood and wood products</p> <p>SU06b - Manufacture of pulp, paper and paper products</p> <p>SU09 - Manufacture of fine chemicals</p> <p>SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)</p>

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**

Section 1 — Title

Short title of the exposure scenario : 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
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Section 2 — Exposure controls

Contributing exposure scenario controlling environmental exposure for:

Product Characteristics : In aqueous preparations

Concentration of substance in mixture or article : >25%

Amounts used : Annual site tonnage 1000000

Environmental factors not influenced by risk management : Flow rate of receiving surface water (m3/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 municipal 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 exposure 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, hygiene and health evaluation

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 v2.0 Worker, <http://www.ecetoc.org/>**

Exposure estimation and reference to its source - Environment:

Exposure assessment : **Used EUSES model.**

(environment):

Exposure estimation : **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 : **Used ECETOC TRA model.**

(human):

Exposure estimation : **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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15 - Use a laboratory reagent
Environmental Release Category	: ERC02 - Formulation of preparations
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 - Products such as ph-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC26 - Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products PC40 - Extraction agents

Section 1 — Title

Short title of the exposure scenario	: Ammonia ... % - Industrial, > 25 %
Identified use name	: Industrial Use for flue gas NO _x and SO _x reduction. Industrial USE as reactive agent/processing aid and for general chemical applications. Industrial USE as heat transfer fluid. Industrial USE as chemical/process nutrient. Industrial USE for surface/article treatment. 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
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Section 2 — Exposure controls

Contributing exposure scenario controlling environmental exposure for:

Product Characteristics	: In aqueous preparations
Concentration of substance in mixture or article	: >25%
Amounts used	: Annual site tonnage 25000

Environmental factors not influenced by risk management	: Flow rate of receiving surface water (m3/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 municipal 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 exposure 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 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, hygiene and health evaluation

- 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 v2.0 Worker, <http://www.ecetoc.org/>

Exposure estimation and reference to its source - Environment:

- Exposure assessment (environment):** : Used EUSES model.
- Exposure estimation** : 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** : 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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring
Environmental Release Category	: ERC04 - Industrial use of processing aids in processes and products, not becoming part of articles ERC05 - Industrial use resulting in inclusion into or onto a matrix ERC06b - Industrial use of reactive processing aids ERC07 - Industrial use of substances in closed systems
Market sector by type of chemical product	: PC01 - Adhesives, sealants PC09a - Coatings and paints, thinners, paint removers PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC20 - Products such as ph-regulators, flocculants, precipitants, neutralization agents PC26 - Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC29 - Pharmaceuticals PC30 - Photo-chemicals PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based 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**

Section 1 — Title

Short title of the exposure scenario : 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
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Section 2 — Exposure controls

Contributing exposure scenario controlling environmental exposure for:

Product Characteristics : In aqueous preparations

Concentration of substance in mixture or article : >25%

Amounts used : Annual site tonnage 800000
Environmental factors not influenced by risk management : Flow rate of receiving surface water (m3/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 ERC06a: 5 %

to RMM)

**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 municipal 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 exposure 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, hygiene and health evaluation

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 v2.0 Worker, <http://www.ecetoc.org/>

Exposure estimation and reference to its source - Environment:

Exposure assessment : Used EUSES model.

(environment):

Exposure estimation : 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 : Used ECETOC TRA model.

(human):

Exposure estimation : 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 Downstream User to evaluate if 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	<ul style="list-style-type: none">: PROC01 - Use in closed process, no likelihood of exposurePROC02 - Use in closed, continuous process with occasional controlled exposurePROC03 - Use in closed batch process (synthesis or formulation)PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arisesPROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilitiesPROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)PROC15 - Use a laboratory reagent
Environmental Release Category	<ul style="list-style-type: none">: ERC06a - Industrial use resulting in manufacture of another substance (use of intermediates)
Market sector by type of chemical product	<ul style="list-style-type: none">: PC19 - Intermediate
Sector of end use	<ul style="list-style-type: none">: SU01 - Agriculture, forestry, fisherySU05 - Manufacture of textiles, leather, furSU08 - Manufacture of bulk, large scale chemicals (including petroleum products)SU09 - Manufacture of fine chemicalsSU12 - Manufacture of plastics products, including compounding and conversionSU24 - Scientific research and developmentSU 0: Other: NACE C21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations

Section 1 — Title

Short title of the exposure scenario

: Ammonia ... % - Professional, Industrial, > 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.
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, 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 exposure 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 exposure 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, 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, hygiene and health evaluation	
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 v2.0 Worker, <http://www.ecetoc.org/>**

Exposure assessment (human):	: Used ECETOC TRA model.
Exposure estimation	: 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 Downstream User to evaluate if 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 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC04 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring PROC15 - Use a laboratory reagent PROC20 - Heat and pressure transfer fluids in dispersive use but closed systems
Environmental Release Category	: ERC08b - Wide dispersive indoor use of reactive substances in open systems ERC08e - Wide dispersive outdoor use of reactive substances in open systems ERC09a - Wide dispersive indoor use of substances in closed systems ERC09b - Wide dispersive outdoor use of substances in closed systems

Market sector by type of chemical product

**: PC09a - Coatings and paints, thinners, paint removers
PC12 - Fertilizers
PC14 - Metal surface treatment products, including galvanic and electroplating products
PC15 - Non-metal surface treatment products
PC16 - Heat transfer fluids
PC19 - Intermediate
PC20 - Products such as ph-regulators, flocculants, precipitants, neutralization agents
PC21 - Laboratory chemicals
PC29 - Pharmaceuticals
PC30 - Photo-chemicals
PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids
PC35 - Washing and cleaning products (including solvent based 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**