

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

AMINOETHYLPIPERAZINE (AEP)

Version	Revision Date:	GB / EN	Date of last issue: 07.04.2021
3.4	18.11.2022		Date of first issue: 20.12.2012

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

1.1 Product identifier

Trade name	:	AMINOETHYLPIPERAZINE (AEP)
Substance name	:	2-piperazin-1-ylethylamine
Index-No.	:	612-105-00-4
EC-No.	:	205-411-0

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

Use of the Substance/Mixture	:	Various industrial applications
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1.3 Details of the supplier of the safety data sheet

Company	:	Nouryon Functional Chemicals AB PO BOX 47067 SE 40258 Goteborg Sweden
Telephone	:	+4630385000
Telefax	:	+46303770551
E-mail address of person responsible for the SDS	:	QTS@nouryon.com

1.4 Emergency telephone number

Emergency number	telephone	:	24 hours emergency response number: +31 57 06 79211, Kemiakuten-SE: 020 99 60 00<(>,<)>
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Acute toxicity, Category 4

H302: Harmful if swallowed.

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Acute toxicity, Category 3	H311: Toxic in contact with skin.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - repeated exposure, Category 1, Respiratory Tract	H372: Causes damage to organs through prolonged or repeated exposure if inhaled.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H311 Toxic in contact with skin. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H361 Suspected of damaging fertility or the unborn child. H372 Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	:	Prevention: P201 Obtain special instructions before use. P260 Do not breathe mist, vapours or spray. P261 Avoid breathing mist or vapours. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. Response: P303 + P361 + P353 IF ON SKIN (or hair): Take off

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immediately all contaminated clothing. Rinse skin with water. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	:	AMINOETHYLPIPERAZINE (AEP)
Index-No.	:	612-105-00-4
EC-No.	:	205-411-0

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
2-Piperazin-1-ylethylamine	140-31-8 205-411-0	>= 90 - <= 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	:	Immediate medical attention is required. Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Symptoms of poisoning may appear several hours later.
If inhaled	:	If breathed in, move person into fresh air. Consult a physician after significant exposure.
In case of skin contact	:	Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. Take victim immediately to hospital.

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- | | | |
|------------------------|---|---|
| In case of eye contact | : | Rinse with plenty of water.
Get medical attention immediately. Continue to rinse during transport.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Small amounts splashed into eyes can cause irreversible tissue damage and blindness. |
| If swallowed | : | Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.
Do not induce vomiting! May cause chemical burns in mouth and throat. |

4.2 Most important symptoms and effects, both acute and delayed

- | | | |
|----------|---|--|
| Symptoms | : | The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known. |
| Risks | : | Harmful if swallowed.
Toxic in contact with skin.
May cause an allergic skin reaction.
Causes serious eye damage.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure if inhaled.
Causes severe burns. |

4.3 Indication of any immediate medical attention and special treatment needed

- | | | |
|-----------|---|------------------------|
| Treatment | : | Treat symptomatically. |
|-----------|---|------------------------|

SECTION 5: Firefighting measures

5.1 Extinguishing media

- | | | |
|------------------------------|---|--|
| Suitable extinguishing media | : | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
|------------------------------|---|--|

5.2 Special hazards arising from the substance or mixture

- | | | |
|--------------------------------------|---|---|
| Specific hazards during firefighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Carbon oxides
Nitrogen oxides (NOx) |

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5.3 Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Use personal protective equipment.
Wear respiratory protection.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Only qualified personnel equipped with suitable protective equipment may intervene.
Prevent unauthorised persons entering the zone.

6.2 Environmental precautions

- Environmental precautions : Do not flush into surface water or sanitary sewer system. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal considerations see section 13.
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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For personal protection see section 8.
 Avoid formation of aerosol.
 Do not breathe vapours or spray mist.
 Avoid contact with skin, eyes and clothing.
 Smoking, eating and drinking should be prohibited in the application area.
 Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Prevent unauthorized access. Keep container tightly closed in a dry and well-ventilated place. Reacts with copper, aluminium, zinc and their alloys.

Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures

Effective exhaust ventilation system
 Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection : Safety glasses with side-shields conforming to EN166

Hand protection

Material : butyl-rubber
 Break through time : > 30 min
 Glove thickness : >= 0.2 mm

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Directive : Protective gloves complying with EN 374.
Wearing time : < 30 min

Material : butyl-rubber
Break through time : > 240 min
Glove thickness : >= 0.6 mm
Directive : Protective gloves complying with EN 374.
Wearing time : < 240 min

Material : butyl-rubber
Break through time : > 480 min
Glove thickness : >= 0.8 mm
Directive : Protective gloves complying with EN 374.
Wearing time : < 480 min

Remarks : The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove.

Skin and body protection : Protective suit

Respiratory protection : In the case of vapour or aerosol formation use a respirator with an approved filter.
Wear full face mask supplied with:
Gas cartridge K (ammonia, green).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : Clear liquid

Colour : colourless

Odour : ammoniacal

Odour Threshold : No data available

pH : 12
Concentration: 1 %

Melting point/range : -19 °C
(1,013 hPa)

Boiling point/boiling range : 220.4 °C (1,013 hPa)

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Flash point	:	99 °C(1,013 hPa) Method: ASTM D 93
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	9.4 %(V)
Lower explosion limit / Lower flammability limit	:	1.1 %(V)
Vapour pressure	:	0.015 hPa (20 °C)
Relative vapour density	:	4.5
Relative density	:	0.980 (20 °C)
Density	:	0.984 g/cm ³ (20 °C)
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	Description: Miscible with ethanol.
Partition coefficient: n-octanol/water	:	log Pow: -1.48 (20 °C)
Auto-ignition temperature	:	> 300 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	14.1 mPa.s (20 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Flammability (liquids)	:	Not classified as a flammability hazard
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Self-ignition : > 300 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Heating can release hazardous gases.

10.4 Conditions to avoid

Conditions to avoid : Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Materials to avoid : Reacts with copper, aluminium, zinc and their alloys.
Strong acids and oxidizing agents
Halogenated compounds

10.6 Hazardous decomposition products

Nitrogen oxides (NO_x)
Thermal decomposition : No data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed.
Toxic in contact with skin.

Components:

2-Piperazin-1-ylethylamine:

Acute oral toxicity : LD50 (Rat): > 2,000 - 5,000 mg/kg
Remarks: Information taken from reference works and the literature.

Acute dermal toxicity : LD50 (Rabbit): > 200 - 1,000 mg/kg
Remarks: Information taken from reference works and the literature.

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Skin corrosion/irritation

Causes severe burns.

Components:

2-Piperazin-1-ylethylamine:

Result : Causes burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

2-Piperazin-1-ylethylamine:

Result : Risk of serious damage to eyes.

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

2-Piperazin-1-ylethylamine:

Species : Guinea pig
 Method : OECD Test Guideline 406
 Result : May cause sensitisation by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Components:

2-Piperazin-1-ylethylamine:

Genotoxicity in vitro : Test Type: Ames test
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vivo
 Species: Mouse
 Result: No evidence of genotoxic effects in vivo.

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Carcinogenicity

Not classified based on available information.

Components:

2-Piperazin-1-ylethylamine:

Remarks : No data available

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Components:

2-Piperazin-1-ylethylamine:

Reproductive toxicity - Assessment : Suspected human reproductive toxicant

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Components:

2-Piperazin-1-ylethylamine:

Exposure routes : Inhalation
 Target Organs : Respiratory Tract
 Assessment : Causes damage to organs through prolonged or repeated exposure.

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : No further data available.

SECTION 12: Ecological information

12.1 Toxicity

Components:

2-Piperazin-1-ylethylamine:

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Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 10 - 100 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC50 : > 100 mg/kg dry weight (d.w.) Exposure time: 28 d

12.2 Persistence and degradability

Product:

Biodegradability	:	Result: Not readily biodegradable.
Biochemical Oxygen Demand (BOD)	:	Remarks: <60% BOD, 28 days, Closed Bottle Test (OECD 301D).

Components:

2-Piperazin-1-ylethylamine:

Biodegradability	:	Result: Not readily biodegradable. Method: OECD Test Guideline 301D
Biochemical Oxygen Demand (BOD)	:	Remarks: <60% BOD, 28 days, Closed Bottle Test (OECD 301D).

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: Not expected considering the low log Pow value.
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Components:

2-Piperazin-1-ylethylamine:

Bioaccumulation	:	Remarks: Not expected considering the low log Pow value.
Partition coefficient: n-octanol/water	:	log Pow: -1.48 (20 °C)

12.4 Mobility in soil

Product:

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Mobility : Remarks: Due to its physical and chemical properties, transport between environmental compartments is not expected

Components:

2-Piperazin-1-ylethylamine:

Mobility : Remarks: Due to its physical and chemical properties, transport between environmental compartments is not expected

12.5 Results of PBT and vPvB assessment

Components:

2-Piperazin-1-ylethylamine:

Assessment : This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic). This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

12.6 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of contents/container in accordance with local regulation.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

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ADR	:	UN 2815
RID	:	UN 2815
IMDG	:	UN 2815
IATA	:	UN 2815

14.2 UN proper shipping name

ADR	:	N-AMINOETHYLPIPERAZINE
RID	:	N-AMINOETHYLPIPERAZINE
IMDG	:	N-AMINOETHYLPIPERAZINE
IATA	:	N-Aminoethylpiperazine

14.3 Transport hazard class(es)

ADR	:	8
RID	:	8
IMDG	:	8
IATA	:	8

14.4 Packing group

ADR

Packing group	:	III
Classification Code	:	CT1
Hazard Identification Number	:	86
Labels	:	8 (6.1)
Tunnel restriction code	:	(E)

RID

Packing group	:	III
Classification Code	:	CT1
Hazard Identification Number	:	86
Labels	:	8 (6.1)

IMDG

Packing group	:	III
Labels	:	8 (6.1)
EmS Code	:	F-A, S-B

IATA (Cargo)

Packing instruction (cargo aircraft)	:	856
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosives, Toxic Substances

IATA_P (Passenger)

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Packing instruction (passenger aircraft)	:	852
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosives, Toxic Substances

14.5 Environmental hazards

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	:	Conditions of restriction for the following entries should be considered: Number on list 3
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
GB Export and import of hazardous chemicals - Prior	:	Not applicable

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Informed Consent (PIC) Regulation

Control of Major Accident Hazards Regulations 2015 (COMAH) Not applicable

The components of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
AIIC	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

2-Piperazin-1-ylethylamine : A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System;

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GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GB / EN