

## Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) revised in 2012 and GHS Rev 03.

Issue date 07/18/2020

Reviewed on 07/18/2020

### \* 1 Identification

· **Product Identifier**

· **Trade Name: Precision Calibration Gas Mixture**

· **Product Number:** G-42018

· **Relevant identified uses of the substance or mixture and uses advised against:**

Used for calibration of gas measuring devices. Not suitable for human consumption.

· **Product Description:**

Calibration gas mixture consisting of Isopentane, n-Pentane, n-Hexane, n-Heptane, n-Octane, Cyclohexane, Methylcyclohexane, Benzene, Toluene, and Nitrogen

· **Details of the Supplier of the Safety Data Sheet:**

· **Manufacturer/Supplier:**

Gasco Affiliates, LLC  
320 Scarlett Blvd.  
Oldsmar, FL 34677

TELEPHONE NUMBER: (800) 910-0051

FAX NUMBER: (866) 755-8920

E-MAIL: info@gascogas.com

· **Emergency telephone number:**

Inside the US: 1-833-723-3267 (Chemtrec, 24 hours)

Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)

### 2 Hazard(s) Identification

· **Classification of the substance or mixture:**



Gas cylinder

Press. Gas      H280      Contains gas under pressure; may explode if heated.

Simple Asphyxiant      May displace oxygen and cause rapid suffocation.

· **Label elements:**

· **Hazard pictograms:**



· **Signal word:** Warning

· **Hazard statements:**

H280 Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

· **Precautionary statements:**

P410+P403 Protect from sunlight. Store in a well-ventilated place.

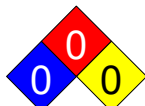
· **Unknown acute toxicity:**

This value refers to knowledge of known, established toxicological or ecotoxicological values.

99.8 % of the mixture consists of component(s) of unknown toxicity.

· **Classification system:** NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

· **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 0

Reactivity = 0

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### · HMIS-ratings (scale 0 - 4)

HEALTH	0	Health = 0
FIRE	0	Fire = 0
REACTIVITY	0	Physical Hazard = 0

### · Hazard(s) not otherwise classified (HNOC): None known

## 3 Composition/Information on Ingredients

### · Chemical characterization: Mixtures

· **Description:** Mixture of substances listed below with non-hazardous additions.

### · Dangerous Components:

CAS: 7727-37-9 RTECS: QW 9700000	Nitrogen ⚠ Press. Gas, H280; Simple Asphyxiant	99.82-99.9991%
CAS: 78-78-4 RTECS: EK 4430000	Isopentane ⚠ Flam. Liq. 1, H224; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Chronic 2, H411; ⚠ STOT SE 3, H336	0.0001-0.05%
CAS: 109-66-0 RTECS: RZ 9450000	Pentane ⚠ Flam. Liq. 2, H225; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Chronic 2, H411; ⚠ STOT SE 3, H336	0.0001-0.05%
CAS: 110-54-3 RTECS: MN 9275000	Hexane ⚠ Flam. Liq. 2, H225; ⚠ Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304; ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.02%
CAS: 142-82-5 RTECS: MI 7700000	Heptane ⚠ Flam. Liq. 2, H225; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.02%
CAS: 111-65-9 RTECS: RG 8400000	Octane ⚠ Flam. Liq. 2, H225; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.02%
CAS: 110-82-7 RTECS: GU 6300000	Cyclohexane ⚠ Flam. Liq. 2, H225; ⚠ Asp. Tox. 1, H304; ⚠ Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.005%
CAS: 108-87-2 RTECS: GV 6125000	Methylcyclohexane ⚠ Flam. Liq. 2, H225; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.005%
CAS: 71-43-2 RTECS: CY 1400000	Benzene ⚠ Flam. Liq. 2, H225; ⚠ Muta. 1B, H340; Carc. 1A, H350; STOT RE 1, H372; Asp. Tox. 1, H304; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319	0.0001-0.005%
CAS: 108-88-3 RTECS: XS 5250000	Toluene ⚠ Flam. Liq. 2, H225; ⚠ Repr. 2, H361; STOT RE 2, H373; Asp. Tox. 1, H304; ⚠ Acute Tox. 4, H332; Skin Irrit. 2, H315; STOT SE 3, H336	0.0001-0.005%

### · Additional information:

The exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

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### 4 First-Aid Measures

- **Description of first aid measures**
- **After inhalation:**  
Generally the product does not irritate with inhalation.  
Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.  
In case of unconsciousness place patient stably in the side position for transportation.
- **After skin contact:**  
Generally, the product does not irritate the skin.  
In cases of contact with liquified material, frostbite may occur. Immerse frostbite in cool-warm water and seek medical attention.  
Wash with soap and water.  
If skin irritation occurs, consult a doctor.
- **After eye contact:**  
Not anticipated under normal use.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
Not a normal route of entry.  
If swallowed and symptoms occur, consult a doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed:** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed:**  
No further relevant information available.

### \* 5 Fire-Fighting Measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Use fire fighting measures that suit the environment.  
Use water spray to cool fire-exposed containers.
- **For safety reasons unsuitable extinguishing agents:** No further relevant information.
- **Special hazards arising from the substance or mixture:**  
Closed containers may explode when exposed to extreme heat.  
If incinerated, product will releaset the following toxic fumes: Oxides of Carbon and Nitrogen (NOx).
- **Advice for firefighters**  
This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.
- **Special protective equipment for firefighters:**  
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

### 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures:**  
Treat any fumes as toxic.  
Keep away from ignition sources  
Ensure adequate ventilation.  
Keep people at a distance and stay upwind.  
In a confined area, NIOSH approved respiratory protection may be required.
- **Environmental precautions:** Inform authorities in case of gas release.
- **Methods and material for containment and cleaning up:**  
Dispose of contaminated material as waste according to section 13.  
Ensure adequate ventilation.  
Dispose of the collected material according to regulations.

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- **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7727-37-9	Nitrogen	7.96E+05 ppm
109-66-0	Pentane	3000* ppm
78-78-4	Isopentane	3000* ppm
142-82-5	Heptane	500 ppm
111-65-9	Octane	230 ppm
110-54-3	Hexane	260 ppm
108-87-2	Methylcyclohexane	1200* ppm
71-43-2	Benzene	52 ppm
108-88-3	Toluene	67 ppm
110-82-7	Cyclohexane	300 ppm

- **PAC-2:**

7727-37-9	Nitrogen	8.32E+05 ppm
109-66-0	Pentane	33000*** ppm
78-78-4	Isopentane	33000*** ppm
142-82-5	Heptane	830 ppm
111-65-9	Octane	385 ppm
110-54-3	Hexane	2900* ppm
108-87-2	Methylcyclohexane	1700* ppm
71-43-2	Benzene	800 ppm
108-88-3	Toluene	560 ppm
110-82-7	Cyclohexane	1700* ppm

- **PAC-3:**

7727-37-9	Nitrogen	8.69E+05 ppm
109-66-0	Pentane	200000*** ppm
78-78-4	Isopentane	200000*** ppm
142-82-5	Heptane	5000* ppm
111-65-9	Octane	5000** ppm
110-54-3	Hexane	8600** ppm
108-87-2	Methylcyclohexane	10000** ppm
71-43-2	Benzene	4000* ppm
108-88-3	Toluene	3700* ppm
110-82-7	Cyclohexane	10000** ppm

## 7 Handling and Storage

- **Handling**

- **Precautions for safe handling:**

Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms due to the potential for oxygen deficiency (simple asphyxiation). Do not attempt to adjust, repair or in any other way modify the cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

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- **Information about protection against explosions and fires:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.

Do not cut, grind or weld on container that contains or contained product.

Do not spray on a naked flame or any incandescent material.

- **Conditions for safe storage, including any incompatibilities** Store away from strong oxidizing agents.

- **Storage**

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

Store in a cool location.

Cylinders should be firmly secured to prevent falling or being knocked over. Cylinders must be protected from the environment, and preferably kept at room temperature. Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a "first-on, first-out" inventory system to prevent full containers from being stored for long periods of time.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

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

### 8 Exposure Controls/Personal Protection

- **Additional information about design of technical systems:** No further data; see section 7.

- **Control parameters:**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

- **Components with occupational exposure limits:**

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

<b>7727-37-9 Nitrogen</b>
TLV   withdrawn TLV, see App. F; simple asphyxiant

- **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

- **Exposure controls:**

- **Personal protective equipment**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Avoid contact with eyes, skin and clothing.

Wash hands before breaks and at the end of work.

- **Breathing equipment:**

Not necessary if room is well-ventilated.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.

- **Protection of hands:** Not required.

- **Material of gloves:** Not applicable.

- **Penetration time of glove material:** Not applicable.

- **Eye protection:** Not necessary under normal conditions.

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Trade Name: Precision Calibration Gas Mixture

### 9 Physical and Chemical Properties

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

- **General Information**

- **Appearance:**

**Form:** Gaseous  
**Color:** Clear, colorless

- **Odor:** Odorless

- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Change in condition**

**Melting point/Melting range:** Not determined.

**Boiling point/Boiling range:** Not determined.

- **Flash point:** Not determined.

- **Flammability (solid, gaseous):** Not determined.

- **Ignition temperature:** Not applicable

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not self-igniting.

- **Danger of explosion:** Not determined.

- **Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

- **Vapor pressure:** Not determined.

- **Density:**

**Relative density:** Not determined.

**Vapor density:** Not determined.

**Evaporation rate:** Not applicable.

- **Solubility in / Miscibility with:**

**Water:** Not miscible or difficult to mix.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

**Dynamic:** Not determined.

**Kinematic:** Not determined.

- **Solvent content:**

**Organic solvents:** 0.2 %

**VOC content:** 0.18 %

**Solids content:** 0.0 %

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

### 10 Stability and Reactivity

- **Reactivity:** No further relevant information available.

- **Chemical stability:** Stable under normal conditions.

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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

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- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** Strong oxidizing agents, phosphorous, organic materials and powdered metals.
- **Hazardous decomposition products:** Carbon Oxides and Nitrogen Oxides (NOx).

### 11 Toxicological Information

- **Information on toxicological effects:**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** No data available.
- **Primary irritant effect:**
- **On the skin:** No irritating effect.
- **On the eye:** No irritating effect.
- **Additional toxicological information:**
- **Carcinogenic categories:**
- **IARC (International Agency for Research on Cancer):**
  - Group 1 - Carcinogenic to humans
  - Group 2A - Probably carcinogenic to humans
  - Group 2B - Possibly carcinogenic to humans
  - Group 3 - Not classifiable as to its carcinogenicity to humans
  - Group 4 - Probably not carcinogenic to humans

71-43-2	Benzene	1
108-88-3	Toluene	3

- **NTP (National Toxicology Program):**

71-43-2	Benzene	K
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- **OSHA-Ca (Occupational Safety & Health Administration):**

71-43-2	Benzene	
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### 12 Ecological Information

- **Toxicity:** The hazards for the aquatic environment are unknown.
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:** No further relevant information available.

### 13 Disposal Considerations

- **Waste treatment methods**
- **Recommendation:**
  - Release all residual gas pressure in a well ventilated area. Verify the cylinder is completely empty (0 PSIG).
  - Remove or cover any hazard labels. Return empty cylinder for recycling.
  - NOTE: Check with the local waste authority before placing any gas cylinder into waste container for pickup.
  - GASCO encourages the consumer to return all cylinders.
- **Waste disposal key:** The U.S. EPA has not published waste disposal numbers for this product's components.

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**Trade Name: Precision Calibration Gas Mixture**

- **Uncleaned packaging**
- **Recommendation:** Return cylinder and unused product to supplier.

**14 Transport Information**

- **UN-Number:**
- **DOT, ADR/ADN, IMDG, IATA** UN1956
- **UN proper shipping name:**
- **DOT** Compressed gas, n.o.s.
- **ADR/ADN** UN1956 Compressed gas, n.o.s.
- **IMDG, IATA** COMPRESSED GAS, N.O.S.
- **Transport hazard class(es):**
- **DOT**



- **Class:** 2.2
- **Label:** 2.2

· **ADR/ADN**

- **Class:** 2.2 1A
- **Label:** 2.2

· **IMDG, IATA**

- **Class:** 2.2
- **Label:** 2.2
- **Packing group:**
- **DOT, ADR/ADN, IMDG, IATA** Non-Regulated Material
- **Environmental hazards:** Not applicable.
- **Special precautions for user:** Not applicable.
- **Hazard identification number (Kemler code):** 20
- **EMS Number:** F-C,S-V
- **Stowage Category** A
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.
- **Transport/Additional information:**
- **DOT**
- **Quantity limitations:** On passenger aircraft/rail: 75 kg  
On cargo aircraft only: 150 kg

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**Trade Name: Precision Calibration Gas Mixture****· ADR/ADN****· Excepted quantities (EQ):**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**· IMDG****· Limited quantities (LQ):**

120 ml

**· Excepted quantities (EQ):**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**· UN "Model Regulation":**

UN 1956 COMPRESSED GAS, N.O.S., 2.2

**15 Regulatory Information****· Safety, health and environmental regulations/legislation specific for the substance or mixture:****· SARA (Superfund Amendments and Reauthorization):****· Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**· Section 313 (Specific toxic chemical listings):**

110-54-3 Hexane

71-43-2 Benzene

108-88-3 Toluene

110-82-7 Cyclohexane

**· TSCA (Toxic Substances Control Act):**

7727-37-9 Nitrogen

109-66-0 Pentane

78-78-4 Isopentane

142-82-5 Heptane

111-65-9 Octane

110-54-3 Hexane

108-87-2 Methylcyclohexane

71-43-2 Benzene

108-88-3 Toluene

110-82-7 Cyclohexane

**· California Proposition 65:****· Chemicals known to cause cancer:**

71-43-2 Benzene

**· Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**· Chemicals known to cause reproductive toxicity for males:**

71-43-2 Benzene

**· Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**· New Jersey Right-to-Know List:**

All ingredients are listed.

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· <b>New Jersey Special Hazardous Substance List:</b>		
109-66-0	Pentane	F4
78-78-4	Isopentane	F4
142-82-5	Heptane	F3
111-65-9	Octane	F3
110-54-3	Hexane	F3
108-87-2	Methylcyclohexane	F3
71-43-2	Benzene	CA, MU, F3
108-88-3	Toluene	TE, F3
110-82-7	Cyclohexane	F3

· <b>Pennsylvania Right-to-Know List:</b>		
All ingredients are listed.		

· <b>Pennsylvania Special Hazardous Substance List:</b>		
71-43-2	Benzene	ES
108-88-3	Toluene	E
110-82-7	Cyclohexane	E

· **Carcinogenic categories:**

· <b>EPA (Environmental Protection Agency):</b>		
142-82-5	Heptane	D
110-54-3	Hexane	II
71-43-2	Benzene	A, K/L
108-88-3	Toluene	II
110-82-7	Cyclohexane	I

· **TLV (Threshold Limit Value established by ACGIH):**

71-43-2	Benzene	A1
108-88-3	Toluene	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health):**

71-43-2	Benzene	
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· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms:**· **Signal word:** Warning· **Hazard statements:**

H280 Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

· **Precautionary statements:**

P410+P403 Protect from sunlight. Store in a well-ventilated place.

· **National regulations:**

None of the ingredients are listed.

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- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other Information

- **Relevant phrases:**

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- **Date of last revision/ revision number:** 07/18/2020 / -

- **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 ACGIH: American Conference of Governmental Industrial Hygienists  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 VOC: Volatile Organic Compounds (USA, EU)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety and Health  
 OSHA: Occupational Safety & Health Administration  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Press. Gas: Gases under pressure – Compressed gas  
 Press. Gas: Gases under pressure – Dissolved gas  
 Flam. Liq. 1: Flammable liquids – Category 1  
 Flam. Liq. 2: Flammable liquids – Category 2  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2  
 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
 Muta. 1B: Germ cell mutagenicity – Category 1B  
 Carc. 1A: Carcinogenicity – Category 1A  
 Repr. 2: Reproductive toxicity – Category 2  
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1  
 STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2  
 Asp. Tox. 1: Aspiration hazard – Category 1  
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1  
 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

- **\* Data compared to the previous version altered.**

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