

SAFETY DATA SHEET



Testmix, Part Number CP299103

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

1.1 Product identifier

Product name : Testmix, Part Number CP299103
Part no. : CP299103

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
1 ml vials
Uses advised against : None known.

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Deutschland GmbH
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

H225	FLAMMABLE LIQUIDS	Category 2
H315	SKIN CORROSION/IRRITATION	Category 2
H319	SERIOUS EYE DAMAGE/EYE IRRITATION	Category 2
H340	GERM CELL MUTAGENICITY	Category 1B
H350	CARCINOGENICITY	Category 1A
H361f	REPRODUCTIVE TOXICITY	Category 2
H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects)	Category 3
H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	Category 2
H304	ASPIRATION HAZARD	Category 1
H400	SHORT-TERM (ACUTE) AQUATIC HAZARD	Category 1
H410	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 1

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 10 - 30%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 10 - 30%

Ingredients of unknown ecotoxicity : Contains 22.6% of components with unknown hazards to the aquatic environment

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

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SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H225 - Highly flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H340 - May cause genetic defects.
H350 - May cause cancer.
H361f - Suspected of damaging fertility.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : P391 - Collect spillage.

Storage : P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

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

Hazardous ingredients : - octane
- Nonane
- Ethylcyclohexane
- cyclohexane
- hexane (containing < 5 %n-hexane (203-777-6))
- n-hexane
- benzene

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Special packaging requirements

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

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SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
isopropylcyclohexane	EC: 211-792-4 CAS: 696-29-7	≤5	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 4, H413	-	[1]
octane	EC: 203-892-1 CAS: 111-65-9 Index: 601-009-00-8	≤5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1] [2]
nonane	EC: 203-913-4 CAS: 111-84-2	≤5	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Inhalation (vapours)] = 17 mg/l M [Acute] = 1 M [Chronic] = 1	[1] [2]
Ethylcyclohexane	EC: 216-835-0 CAS: 1678-91-7	≤5	Flam. Liq. 3, H226 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411	M [Acute] = 1	[1]
cyclohexane	EC: 203-806-2 CAS: 110-82-7 Index: 601-017-00-1	≤5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1] [2]
2-methylpentane (containing < 5 % n-hexane (203-777-6))	EC: 203-523-4 CAS: 107-83-5 Index: 601-007-00-7	≤5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1] [2]
methylcyclohexane	EC: 203-624-3 CAS: 108-87-2 Index: 601-018-00-7	≤5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1] [2]
heptane	EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2	≤5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1] [2]

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Hept-1-ene	EC: 209-767-8 CAS: 592-76-7	≤5	H410 Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Asp. Tox. 1, H304	-	[1]
n-hexane	EC: 203-777-6 CAS: 110-54-3 Index: 601-037-00-0	<5	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361f STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	STOT RE 2, H373: C ≥ 5%	[1] [2]
oct-1-ene	EC: 203-893-7 CAS: 111-66-0	≤5	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH066	M [Acute] = 1 M [Chronic] = 1	[1]
Non-1-ene	EC: 204-681-7 CAS: 124-11-8	≤5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1]
Decane	EC: 204-686-4 CAS: 124-18-5	≤5	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 3, H412 EUH066	-	[1]
undecane	EC: 214-300-6 CAS: 1120-21-4	≤5	Asp. Tox. 1, H304 EUH066	-	[1]
dodecane	EC: 203-967-9 CAS: 112-40-3	≤5	Eye Irrit. 2, H319 Asp. Tox. 1, H304 EUH066	-	[1]
Dec-1-ene	EC: 212-819-2 CAS: 872-05-9	≤3	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH066	M [Acute] = 1 M [Chronic] = 1	[1]
pentamethylbenzene	EC: 211-837-8 CAS: 700-12-9	≤2.8	Flam. Sol. 1, H228 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 4, H413	-	[1]
cyclopentane	EC: 206-016-6 CAS: 287-92-3 Index: 601-030-00-2	≤3	Flam. Liq. 2, H225 Aquatic Chronic 3, H412	-	[1] [2]
toluene	EC: 203-625-9 CAS: 108-88-3	<3	Flam. Liq. 2, H225 Skin Irrit. 2, H315	-	[1] [2]

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SECTION 3: Composition/information on ingredients

o-xylene	Index: 601-021-00-3 EC: 202-422-2 CAS: 95-47-6 Index: 601-022-00-9	≤2.8	Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]
sec-butylbenzene	EC: 205-227-0 CAS: 135-98-8	≤3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 2, H411	-	[1]
benzene	EC: 200-753-7 CAS: 71-43-2 Index: 601-020-00-8	≤3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Muta. 1B, H340 Carc. 1A, H350 STOT RE 1, H372 Asp. Tox. 1, H304	-	[1] [2]
ethylbenzene	EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≤3	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304	ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]
cumene	EC: 202-704-5 CAS: 98-82-8 Index: 601-024-00-X	≤2.8	Flam. Liq. 3, H226 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1] [2]
1,2,3-Trimethylbenzene	EC: 208-394-8 CAS: 526-73-8	≤3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319	-	[1] [2]
1,2,3,4-Tetramethylbenzene	EC: 207-673-1 CAS: 488-23-3	≤2.8	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 4, H413	-	[1]
cis-bicyclo[4.4.0]decane	EC: 207-770-9 CAS: 493-01-6	≤2.8	Flam. Liq. 3, H226 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 4, H413	ATE [Inhalation (vapours)] = 11 mg/l	[1]
Hex-1-ene	EC: 209-753-1 CAS: 592-41-6	≤3	Flam. Liq. 2, H225 Asp. Tox. 1, H304 EUH066	-	[1] [2]
1-Methylcyclopentene	EC: 211-762-0	≤3	Flam. Liq. 2, H225	-	[1]

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pentane	CAS: 693-89-0 EC: 203-692-4 CAS: 109-66-0 Index: 601-006-00-1	≤3	Asp. Tox. 1, H304 Flam. Liq. 2, H225 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	-	[1] [2]
pent-1-ene	EC: 203-694-5 CAS: 109-67-1	≤3	Flam. Liq. 1, H224 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	-	[1]
2-methylhexane	EC: 209-730-6 CAS: 591-76-4 Index: 601-008-00-2	≤3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1]
2-methylheptane	EC: 209-747-9 CAS: 592-27-8 Index: 601-009-00-8	≤3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1]
2-Methyloctane	EC: 221-748-6 CAS: 3221-61-2	≤3	Flam. Liq. 3, H226 See Section 16 for the full text of the H statements declared above.	-	[2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation

: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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SECTION 4: First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced foetal weight
increase in foetal deaths
skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

5.3 Advice for firefighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

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

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P5c E1	5000 tonne 100 tonne	50000 tonne 200 tonne

7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
octane	NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 300 ppm 8 hours. OELV-8hr: 1450 mg/m ³ 8 hours.
nonane	NAOSH (Ireland, 5/2021). [nonane] Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 200 ppm 8 hours. OELV-8hr: 1050 mg/m ³ 8 hours.
cyclohexane	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 200 ppm 8 hours.

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2-methylpentane (containing < 5 % n-hexane (203-777-6))	OELV-8hr: 700 mg/m ³ 8 hours. NAOSH (Ireland, 5/2021). [hexane] Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 500 ppm 8 hours. OELV-8hr: 1800 mg/m ³ 8 hours. OELV-15min: 1000 ppm 15 minutes. OELV-15min: 3600 mg/m ³ 15 minutes.
methylcyclohexane	NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 400 ppm 8 hours. OELV-8hr: 1600 mg/m ³ 8 hours.
heptane	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 500 ppm 8 hours. OELV-8hr: 2085 mg/m ³ 8 hours.
n-hexane	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 20 ppm 8 hours. OELV-8hr: 72 mg/m ³ 8 hours.
cyclopentane	NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 1720 mg/m ³ 8 hours. OELV-8hr: 600 ppm 8 hours.
toluene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 50 ppm 8 hours. OELV-8hr: 192 mg/m ³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 384 mg/m ³ 15 minutes.
o-xylene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 50 ppm 8 hours. OELV-8hr: 221 mg/m ³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 442 mg/m ³ 15 minutes.
benzene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 1 ppm 8 hours. OELV-8hr: 3.25 mg/m ³ 8 hours.
ethylbenzene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 100 ppm 8 hours. OELV-8hr: 442 mg/m ³ 8 hours. OELV-15min: 200 ppm 15 minutes. OELV-15min: 884 mg/m ³ 15 minutes.
cumene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 10 ppm 8 hours. OELV-8hr: 50 mg/m ³ 8 hours. OELV-15min: 50 ppm 15 minutes. OELV-15min: 250 mg/m ³ 15 minutes.
1,2,3-Trimethylbenzene	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 20 ppm 8 hours. OELV-8hr: 100 mg/m ³ 8 hours.
Hex-1-ene	NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 50 ppm 8 hours.
pentane	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values

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2-Methyloctane	<p>OELV-8hr: 1000 ppm 8 hours. OELV-8hr: 3000 mg/m³ 8 hours. NAOSH (Ireland, 5/2021). [nonane] Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 200 ppm 8 hours. OELV-8hr: 1050 mg/m³ 8 hours.</p>
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Biological exposure indices

Product/ingredient name	Exposure indices
n-hexane	<p>NAOSH (Ireland, 1/2011) BMGV: 0.4 mg/l, 2,5-hexanedione [in urine]. Sampling time: end of shift at end of workweek.</p>
toluene	<p>NAOSH (Ireland, 1/2011) BMGV: 0.3 mg/g creatinine, o-cresol [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases. BMGV: 0.03 mg/l, toluene [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases. BMGV: 0.02 mg/l, toluene [in blood]. Sampling time: prior to last shift of workweek.</p>
o-xylene	<p>NAOSH (Ireland, 1/2011) [Xylene] BMGV: 1.5 g/g creatinine, methylhippuric acids [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.</p>
benzene	<p>NAOSH (Ireland, 1/2011) BMGV: 500 µg/g creatinine, t,t-Muconic acid [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases. BMGV: 25 µg/g creatinine, S-phenylmercapturic acid [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.</p>
ethylbenzene	<p>NAOSH (Ireland, 1/2011) BMGV: Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question., ethylbenzene [in endexhaled air]. Sampling time: not critical. BMGV: 0.7 g/g creatinine [Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], mandelic acid and phenylglyoxylic acid [in urine]. Sampling time: end of shift at end of workweek.</p>

Recommended monitoring procedures

: Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
isopropylcyclohexane	DNEL	Short term Oral	0.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	3.1 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	8.05 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	8.05 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	32.4 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	32.4 mg/m ³	Workers	Systemic
octane	DNEL	Long term Inhalation	608 mg/m ³	General population	Systemic
	DNEL	Long term Oral	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	773 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	2035 mg/m ³	Workers	Systemic
nonane	DNEL	Long term Inhalation	608 mg/m ³	General population	Systemic
	DNEL	Long term Oral	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	699 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	773 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	2035 mg/m ³	Workers	Systemic
Ethylcyclohexane	DNEL	Long term Dermal	0.26 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	0.33 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.702 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	0.704 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	113.25 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	456 mg/m ³	Workers	Systemic
	cyclohexane	DNEL	Long term Oral	59.4 mg/kg bw/day	General population
DNEL		Long term Inhalation	206 mg/m ³	General population	Local
DNEL		Long term Inhalation	206 mg/m ³	General population	Systemic
DNEL		Short term Inhalation	412 mg/m ³	General population	Local
DNEL		Short term Inhalation	412 mg/m ³	General population	Systemic
DNEL		Long term Inhalation	700 mg/m ³	Workers	Local
DNEL		Long term Inhalation	700 mg/m ³	Workers	Systemic
DNEL		Long term Dermal	1186 mg/	General	Systemic

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SECTION 8: Exposure controls/personal protection

methylcyclohexane	DNEL	Short term Inhalation	kg bw/day 1400 mg/m ³	population Workers	Local
	DNEL	Short term Inhalation	1400 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	2016 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Oral	0.4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.8 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	1.7 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	16 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	64.3 mg/m ³	Workers	Systemic
heptane	DNEL	Short term Inhalation	1016 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	1354.6 mg/m ³	Workers	Systemic
	DNEL	Long term Oral	149 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	149 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	300 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	447 mg/m ³	General population	Systemic
n-hexane	DNEL	Long term Inhalation	2085 mg/m ³	Workers	Systemic
	DNEL	Long term Oral	4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	5.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	11 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	16 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	75 mg/m ³	Workers	Systemic
cyclopentane	DNEL	Long term Oral	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	214 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	432 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	643 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	3000 mg/m ³	Workers	Systemic
	DNEL	Long term Oral	8.13 mg/kg bw/day	General population	Systemic
toluene	DNEL	Long term Inhalation	56.5 mg/m ³	General population	Local
	DNEL	Long term Inhalation	56.5 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	192 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	192 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	226 mg/kg bw/day	General population	Systemic

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SECTION 8: Exposure controls/personal protection

o-xylene	DNEL	Short term Inhalation	226 mg/m ³	General population	Local	
	DNEL	Short term Inhalation	226 mg/m ³	General population	Systemic	
	DNEL	Long term Dermal	384 mg/kg bw/day	Workers	Systemic	
	DNEL	Short term Inhalation	384 mg/m ³	Workers	Local	
	DNEL	Short term Inhalation	384 mg/m ³	Workers	Systemic	
	DNEL	Long term Oral	2.5 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Inhalation	65.3 mg/m ³	General population	Local	
	DNEL	Long term Inhalation	65.3 mg/m ³	General population	Systemic	
	DNEL	Long term Dermal	125 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Dermal	212 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Inhalation	221 mg/m ³	Workers	Local	
	DNEL	Long term Inhalation	221 mg/m ³	Workers	Systemic	
	DNEL	Short term Inhalation	260 mg/m ³	General population	Local	
	DNEL	Short term Inhalation	260 mg/m ³	General population	Systemic	
	benzene	DNEL	Short term Inhalation	442 mg/m ³	Workers	Local
DNEL		Short term Inhalation	442 mg/m ³	Workers	Systemic	
DNEL		Long term Inhalation	0.14 mg/m ³	General population	Systemic	
ethylbenzene		DNEL	Long term Oral	1.6 mg/kg bw/day	General population	Systemic
		DNEL	Long term Inhalation	15 mg/m ³	General population	Systemic
cumene	DNEL	Long term Inhalation	77 mg/m ³	Workers	Systemic	
	DNEL	Long term Dermal	180 mg/kg bw/day	Workers	Systemic	
	DNEL	Short term Inhalation	293 mg/m ³	Workers	Local	
	DMEL	Long term Inhalation	442 mg/m ³	Workers	Local	
	DMEL	Short term Inhalation	884 mg/m ³	Workers	Systemic	
	DNEL	Long term Dermal	1.2 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Oral	5 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Dermal	15.4 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Inhalation	16.6 mg/m ³	General population	Systemic	
	DNEL	Long term Inhalation	100 mg/m ³	Workers	Systemic	
pentane	DNEL	Short term Inhalation	250 mg/m ³	Workers	Local	
	DNEL	Long term Oral	214 mg/kg bw/day	General population	Systemic	
	DNEL	Long term Dermal	214 mg/kg	General	Systemic	

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	DNEL	Long term Dermal	bw/day 432 mg/kg	population Workers	Systemic
	DNEL	Long term Inhalation	bw/day 643 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	3000 mg/ m ³	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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SECTION 9: Physical and chemical properties

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

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid. [Clear.]
Colour : Colourless.
Odour : Gasoline-like
Odour threshold : Not available.
Melting point/freezing point : Not available.
Initial boiling point and boiling range : Not available.
Flammability : Not applicable.
Upper/lower flammability or explosive limits : Not available.
Flash point : Closed cup: -18 to 23°C

Auto-ignition temperature	Ingredient name	°C	Method
	dodecane	200	
	undecane	202	

Decomposition temperature : Not available.

pH : Not available.

Viscosity : Not available.

Solubility(ies)	Media	Result
	water	Insoluble

Miscible with water : No.

Partition coefficient: n-octanol/water : Not applicable.

Vapour pressure	Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	pent-1-ene	634.85	84.6				
	pentane	442.84	59				

Evaporation rate : Not available.

Relative density : 0.8

Density : 0.8 g/cm³

Vapour density : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

No additional information.

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SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:
oxidising materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
isopropylcyclohexane	LC50 Inhalation Dusts and mists	Rat	>5.04 mg/l	4 hours
	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	>10000 mg/kg	-
octane	LC50 Inhalation Vapour	Rat	118 g/m ³	4 hours
	LC50 Inhalation Vapour	Rat	25260 ppm	4 hours
	LD50 Oral	Rat	>5000 mg/kg	-
nonane	LC50 Inhalation Vapour	Rat	17000 mg/m ³	4 hours
	LC50 Inhalation Vapour	Rat	3200 ppm	4 hours
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
cyclohexane	LC50 Inhalation Vapour	Rat - Male, Female	>32880 mg/m ³	4 hours
	LD50 Oral	Rat	6240 mg/kg	-
	LC50 Inhalation Vapour	Rat	103 g/m ³	4 hours
heptane	LC50 Inhalation Vapour	Rat	48000 ppm	4 hours
	LC50 Inhalation Vapour	Rat	169.2 mg/l	4 hours
n-hexane	LD50 Oral	Rat	15840 mg/kg	-
oct-1-ene	LD50 Oral	Rat	>10000 mg/kg	-
Decane	LD50 Dermal	Rabbit - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
undecane	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
dodecane	LD50 Dermal	Rabbit - Male, Female	>5000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
Dec-1-ene	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat - Male, Female	>25.3 mg/l	4 hours
cyclopentane	LD50 Oral	Rat	11400 mg/kg	-
	LC50 Inhalation Vapour	Rat	49 g/m ³	4 hours
toluene	LD50 Dermal	Rat	12000 mg/kg	-
	LD50 Oral	Rat	636 mg/kg	-
o-xylene	LC50 Inhalation Vapour	Rat	27.559 mg/l	4 hours
sec-butylbenzene	LD50 Oral	Rat	6300 mg/kg	-
benzene	LD50 Oral	Rat	930 mg/kg	-

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ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
cumene	LC50 Inhalation Dusts and mists	Rat	39000 mg/m ³	4 hours
	LD50 Oral	Rat	1400 mg/kg	-
1,2,3,4-Tetramethylbenzene	LD50 Oral	Rat	6408 mg/kg	-
cis-bicyclo[4.4.0]decane	LD50 Dermal	Rabbit	5900 mg/kg	-
	LD50 Oral	Rat	4.2 g/kg	-
Hex-1-ene	LC50 Inhalation Vapour	Rat	32000 ppm	4 hours
pentane	LC50 Inhalation Vapour	Rat	364 g/m ³	4 hours
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-
pent-1-ene	LC50 Inhalation Dusts and mists	Rat	175000 mg/m ³	4 hours

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Testmix, Part Number CP299103	N/A	39545.0	N/A	62.8	N/A
octane	N/A	N/A	N/A	118	N/A
nonane	N/A	N/A	N/A	17	N/A
cyclohexane	6240	N/A	N/A	N/A	N/A
heptane	N/A	N/A	N/A	103	N/A
n-hexane	15840	N/A	N/A	169.2	N/A
cyclopentane	11400	N/A	N/A	N/A	N/A
toluene	N/A	N/A	N/A	49	N/A
o-xylene	3000	1100	N/A	11	N/A
sec-butylbenzene	6300	N/A	N/A	N/A	N/A
ethylbenzene	3500	N/A	N/A	11	N/A
cumene	N/A	N/A	N/A	N/A	39
1,2,3,4-Tetramethylbenzene	6408	N/A	N/A	N/A	N/A
cis-bicyclo[4.4.0]decane	4200	5900	N/A	11	N/A
pentane	N/A	N/A	N/A	364	N/A
pent-1-ene	N/A	N/A	N/A	N/A	175

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
nonane	Skin - Moderate irritant	Rat	-	96 hours 300 uL	-
methylcyclohexane	Eyes - Mild irritant	Rabbit	-	24 hours 100 uL	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
n-hexane	Eyes - Mild irritant	Rabbit	-	10 mg	-
dodecane	Skin - Moderate irritant	Rabbit	-	24 hours 0.05 MI	-
	Skin - Moderate irritant	Rat	-	96 hours 300 uL	-
toluene	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
	Skin - Mild irritant	Rabbit	-	435 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
sec-butylbenzene	Skin - Moderate irritant	Rabbit	-	500 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant	Rabbit	-	24 hours 100 mg	-
benzene	Eyes - Moderate irritant	Rabbit	-	88 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 mg	-
	Skin - Mild irritant	Rat	-	8 hours 60 uL	-

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ethylbenzene	Skin - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Eyes - Severe irritant Skin - Mild irritant	Rabbit Rabbit	- -	500 mg 24 hours 15 mg	- -
cumene	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	86 mg 24 hours 10 mg	- -
1,2,3,4-Tetramethylbenzene	Skin - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 100 mg	-

Skin : Repeated exposure may cause skin dryness or cracking.

Sensitiser

Product/ingredient name	Route of exposure	Species	Result
oct-1-ene	skin	Guinea pig	Not sensitizing

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
octane	Category 3	-	Narcotic effects
nonane	Category 3	-	Narcotic effects
Ethylcyclohexane	Category 3	-	Narcotic effects
cyclohexane	Category 3	-	Narcotic effects
2-methylpentane (containing < 5 % n-hexane (203-777-6))	Category 3	-	Narcotic effects
methylcyclohexane	Category 3	-	Narcotic effects
heptane	Category 3	-	Narcotic effects
n-hexane	Category 3	-	Narcotic effects
Non-1-ene	Category 3	-	Respiratory tract irritation
pentamethylbenzene	Category 3	-	Respiratory tract irritation
toluene	Category 3	-	Narcotic effects
o-xylene	Category 3	-	Respiratory tract irritation
cumene	Category 3	-	Respiratory tract irritation
1,2,3,4-Tetramethylbenzene	Category 3	-	Respiratory tract irritation
cis-bicyclo[4.4.0]decane	Category 3	-	Respiratory tract irritation
pentane	Category 3	-	Narcotic effects
pent-1-ene	Category 3	-	Narcotic effects
2-methylhexane	Category 3	-	Narcotic effects
2-methylheptane	Category 3	-	Narcotic effects

Specific target organ toxicity (repeated exposure)

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Product/ingredient name	Category	Route of exposure	Target organs
n-hexane	Category 2	-	-
toluene	Category 2	-	-
benzene	Category 1	-	-
ethylbenzene	Category 2	-	hearing organs

Aspiration hazard

Product/ingredient name	Result
Testmix, Part Number CP299103	ASPIRATION HAZARD - Category 1
isopropylcyclohexane	ASPIRATION HAZARD - Category 1
octane	ASPIRATION HAZARD - Category 1
nonane	ASPIRATION HAZARD - Category 1
Ethylcyclohexane	ASPIRATION HAZARD - Category 1
cyclohexane	ASPIRATION HAZARD - Category 1
2-methylpentane (containing < 5 % n-hexane (203-777-6))	ASPIRATION HAZARD - Category 1
methylcyclohexane	ASPIRATION HAZARD - Category 1
heptane	ASPIRATION HAZARD - Category 1
Hept-1-ene	ASPIRATION HAZARD - Category 1
n-hexane	ASPIRATION HAZARD - Category 1
oct-1-ene	ASPIRATION HAZARD - Category 1
Non-1-ene	ASPIRATION HAZARD - Category 1
Decane	ASPIRATION HAZARD - Category 1
undecane	ASPIRATION HAZARD - Category 1
dodecane	ASPIRATION HAZARD - Category 1
Dec-1-ene	ASPIRATION HAZARD - Category 1
toluene	ASPIRATION HAZARD - Category 1
o-xylene	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1
cumene	ASPIRATION HAZARD - Category 1
Hex-1-ene	ASPIRATION HAZARD - Category 1
1-Methylcyclopentene	ASPIRATION HAZARD - Category 1
pentane	ASPIRATION HAZARD - Category 1
pent-1-ene	ASPIRATION HAZARD - Category 1
2-methylhexane	ASPIRATION HAZARD - Category 1
2-methylheptane	ASPIRATION HAZARD - Category 1

Information on likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.
- Skin contact** : Causes skin irritation.
- Eye contact** : Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation** : Adverse symptoms may include the following:
 - nausea or vomiting
 - headache
 - drowsiness/fatigue
 - dizziness/vertigo
 - unconsciousness
 - reduced foetal weight
 - increase in foetal deaths
 - skeletal malformations

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- Ingestion** : Adverse symptoms may include the following:
 nausea or vomiting
 reduced foetal weight
 increase in foetal deaths
 skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
 irritation
 redness
 reduced foetal weight
 increase in foetal deaths
 skeletal malformations
- Eye contact** : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : May cause genetic defects.
- Reproductive toxicity** : Suspected of damaging fertility.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Ethylcyclohexane	Acute EC50 0.406 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute LC50 8800 µg/l Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute NOEC 0.218 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
cyclohexane methylcyclohexane	Acute LC50 4530 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 0.326 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5800 µg/l Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
heptane	Acute LC50 375000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours

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n-hexane	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
oct-1-ene	Acute LC50 4.8 mg/l Fresh water	Fish - Danio rerio - Young	96 hours
Non-1-ene	Acute EC50 3.2 to 10 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
Decane	Acute LC50 10 mg/l Fresh water	Fish - Danio rerio - Young	96 hours
	Acute EC50 >500000 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 18 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 >500 mg/l Marine water	Fish - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
toluene	Acute EC50 >433 ppm Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
o-xylene	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 0.74 mg/l	Daphnia - Ceriodaphnia dubia	7 days
	Acute EC50 10.7 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 1.39 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
benzene	Acute LC50 7600 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 1.57 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 0.714 mg/l Fresh water	Fish - Danio rerio	35 days
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9.23 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
ethylbenzene	Acute LC50 5.28 µl/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic EC10 >1360 mg/l Fresh water	Algae - Desmodesmus subspicatus	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.5 to 5.4 µl/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Acute EC50 4900 µg/l Marine water	Algae - Skeletonema costatum	72 hours
	Acute EC50 7700 µg/l Marine water	Algae - Skeletonema costatum	96 hours
cumene	Acute EC50 6.53 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 2.93 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 7.4 mg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 10.6 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 0.35 mg/l Fresh water	Daphnia - Daphnia Magna	21 days

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
isopropylcyclohexane	OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)	1 % - Not readily - 28 days	15 mg/l	-
Ethylcyclohexane	OECD 301C	0 % - Not readily - 28 days	-	-

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2-methylpentane (containing < 5 % n-hexane (203-777-6))	Ready Biodegradability - Modified MITI Test (I) OECD 301C	93 to 94 % - Readily - 28 days	-	Activated sludge
methylcyclohexane	Ready Biodegradability - Modified MITI Test (I) OECD 301D	0 % - Not readily - 28 days	2.45 mg/l	-
cyclopentane	Ready Biodegradability - Closed Bottle Test OECD 301F	0 % - Not readily - 28 days	50.31 mg/l	Activated sludge
o-xylene	Ready Biodegradability - Manometric Respirometry Test OECD 301F	98 % - Readily - 28 days	-	-
ethylbenzene	Ready Biodegradability - Manometric Respirometry Test ISO	70 to 80 % - Readily - 28 days	-	Activated sludge
pentane	Ready Biodegradability - Manometric Respirometry Test OECD 301F	87 % - Readily - 28 days	-	Activated sludge

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
isopropylcyclohexane	-	-	Not readily
octane	-	-	Readily
nonane	-	-	Readily
Ethylcyclohexane	-	-	Not readily
cyclohexane	-	-	Readily
2-methylpentane (containing < 5 % n-hexane (203-777-6))	-	-	Readily
methylcyclohexane	-	-	Not readily
heptane	-	-	Readily
n-hexane	-	-	Readily
oct-1-ene	-	-	Readily
Decane	-	-	Readily
undecane	-	-	Readily
dodecane	-	-	Readily
Dec-1-ene	-	-	Readily
cyclopentane	-	-	Not readily
toluene	-	-	Readily
o-xylene	-	-	Readily
benzene	-	-	Readily
ethylbenzene	-	-	Readily
cumene	-	-	Not readily
Hex-1-ene	-	-	Readily
pentane	-	-	Readily
pent-1-ene	-	-	Not readily

12.3 Bioaccumulative potential

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Product/ingredient name	LogP _{ow}	BCF	Potential
isopropylcyclohexane	6	-	high
octane	5.18	198.7	low
nonane	5.65	105	low
Ethylcyclohexane	4.56	-	high
cyclohexane	3.44	167	low
methylcyclohexane	3.61	186.21	low
heptane	4.66	552	high
Hept-1-ene	3.99	-	low
n-hexane	4	501.187	high
oct-1-ene	4.47	3.1	low
Non-1-ene	5.15	1479.11	high
Decane	5.86	-	high
undecane	6.42	-	high
dodecane	6.98	239.88	low
Dec-1-ene	5.12	3.65	low
pentamethylbenzene	4.56	-	high
cyclopentane	3	70.8	low
toluene	2.73	90	low
o-xylene	3.12	8.1 to 25.9	low
sec-butylbenzene	4.57	-	high
benzene	2.13	11	low
ethylbenzene	3.6	-	low
cumene	3.55	35.48	low
1,2,3-Trimethylbenzene	3.66	194.98	low
1,2,3,4-Tetramethylbenzene	4	-	high
cis-bicyclo[4.4.0]decane	-	1621.81	high
Hex-1-ene	3.87	2.59	low
pentane	3.45	171	low
pent-1-ene	2.66	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

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SECTION 13: Disposal considerations

Packaging

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

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	UN3295	UN3295	UN3295
14.2 UN proper shipping name	HYDROCARBONS, LIQUID, N.O.S.	HYDROCARBONS, LIQUID, N.O.S.	Hydrocarbons, liquid, n.o.s.
14.3 Transport hazard class(es)	3  	3  	3 
14.4 Packing group	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.

Additional information

Remarks: De minimis quantities

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Hazard identification number 33

Limited quantity 1 L

Special provisions 640D

Tunnel code (D/E)

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Emergency schedules F-E, S-D

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.

Quantity limitation Passenger and Cargo Aircraft: 5 L. Packaging instructions: 353.

Cargo Aircraft Only: 60 L. Packaging instructions: 364. Limited Quantities - Passenger Aircraft: 1 L. Packaging instructions: Y341.

Special provisions A3, A324

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to IMO instruments : Not available.

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SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Ingredient name	CAS no.	Status
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Toluene	108-88-3	48
benzene	71-43-2	5
benzene	71-43-2	72

Label : Restricted to professional users.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Ingredient name	Annex	Status
Benzene	Annex I - Part 1	Listed

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P5c E1

National regulations

Product/ingredient name	List name	Name on list	Classification	Notes
benzene	Ireland Occupational Exposure Limits	benzene	Carc..1A, Muta..1B	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

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SECTION 15: Regulatory information

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Eurasian Economic Union	: Russian Federation inventory : All components are listed or exempted.
Japan	: Japan inventory (CSCL) : Not determined. Japan inventory (ISHL) : Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: All components are listed or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

📌 Indicates information that has changed from previously issued version.

Abbreviations and acronyms :

- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Muta. 1B, H340	Calculation method
Carc. 1A, H350	Calculation method
Repr. 2, H361f	Calculation method
STOT SE 3, H336	Calculation method
STOT RE 2, H373	Calculation method
Asp. Tox. 1, H304	Expert judgment
Aquatic Acute 1, H400	Calculation method
Aquatic Chronic 1, H410	Calculation method

Full text of abbreviated H statements

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SECTION 16: Other information

H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361d	Suspected of damaging the unborn child.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Aquatic Chronic 4	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 4
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Carc. 1A	CARCINOGENICITY - Category 1A
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 1	FLAMMABLE LIQUIDS - Category 1
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Flam. Sol. 1	FLAMMABLE SOLIDS - Category 1
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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