SAFETY DATA SHEET

Agilent Technologies

Testmix

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

1.1 Product identifier

Product name : Testmix

Part no. : CP299107

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use
5 x 1 ml

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®: +353 1 901 4670

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
H314	SKIN CORROSION/IRRITATION	Category 1B
H340	GERM CELL MUTAGENICITY	Category 1B
H350	CARCINOGENICITY	Category 1A
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
H411	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 2

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: 30 - 60%
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 17.6% of components with unknown hazards to the aquatic environment

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

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

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms :

Signal word : Danger

Hazard statements : H225 - Highly flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H314 - Causes severe skin burns and eye damage.
H336 - May cause drowsiness or dizziness.
H340 - May cause genetic defects.
H350 - May cause cancer.
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 : trans-bicyclo[4.4.0]decane; ethylcyclohexane; octane; 2,2,4-trimethylpentane; methylcyclohexane; nonane and 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 : Causes digestive tract burns.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
cumene	EC: 202-704-5 CAS: 98-82-8	≤9.3	Flam. Liq. 3, H226 Carc. 1B, H350 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 3, H412	-	[1] [2]
trans-bicyclo[4.4.0]decane	EC: 207-771-4 CAS: 493-02-7	≤10	Flam. Liq. 3, H226 Skin Corr. 1B, H314 Aquatic Chronic 4, H413	-	[1]
heptylbenzene	EC: 214-084-3 CAS: 1078-71-3	≤10	Aquatic Acute 1, H400	M [Acute] = 1	[1]
ethylcyclohexane	EC: 216-835-0 CAS: 1678-91-7	≤10	Flam. Liq. 3, H226 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411	M [Acute] = 1	[1]
decane	EC: 204-686-4 CAS: 124-18-5	≤10	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 3, H412 EUH066	-	[1]
o-xylene	EC: 202-422-2 CAS: 95-47-6 Index: 601-022-00-9	≤7.4	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]
ethylbenzene	EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	<10	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]
butylbenzene	EC: 203-209-7 CAS: 104-51-8	≤5.8	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Acute] = 1 M [Chronic] = 1	[1]
isopropylcyclohexane	EC: 211-792-4 CAS: 696-29-7	≤5	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 4, H413	-	[1]
undecane	EC: 214-300-6 CAS: 1120-21-4	≤5	Asp. Tox. 1, H304 EUH066	-	[1]
tetradecane	EC: 211-096-0 CAS: 629-59-4	≤5	Asp. Tox. 1, H304 EUH066	-	[1]
octane	EC: 203-892-1	≤4.7	Flam. Liq. 2, H225	M [Acute] = 1	[1] [2]

SECTION 3: Composition/information on ingredients

	CAS: 111-65-9 Index: 601-009-00-8		Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	M [Chronic] = 1	
2,2,4-trimethylpentane	EC: 208-759-1 CAS: 540-84-1	≤4.7	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]
dodecane	EC: 203-967-9 CAS: 112-40-3	≤5	Eye Irrit. 2, H319 Asp. Tox. 1, H304 EUH066	-	[1]
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]
nonane	EC: 203-913-4 CAS: 111-84-2	≤3	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]
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 Aquatic Chronic 3, H412	-	[1] [2]
toluene	EC: 203-625-9 CAS: 108-88-3 Index: 601-021-00-3	<3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361d STOT SE 3, H336 STOT RE 2, H373 (nervous system) (inhalation) Asp. Tox. 1, H304 Aquatic Chronic 3, H412	STOT SE 3, H336: C ≥ 20%	[1] [2]
4-methylcyclohexene	EC: 209-715-4 CAS: 591-47-9	≤3	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304	-	[1]
heptane	EC: 205-563-8 CAS: 142-82-5	≤2.4	Flam. Liq. 2, H225 Skin Irrit. 2, H315	M [Acute] = 1 M [Chronic] = 1	[1] [2]

SECTION 3: Composition/information on ingredients

	Index: 601-008-00-2		STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410		
2,3-dimethylpentane	EC: 209-280-0 CAS: 565-59-3 Index: 601-008-00-2	≤2.4	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]
cyclohexene	EC: 203-807-8 CAS: 110-83-8	≤3	Flam. Liq. 2, H225 Acute Tox. 4, H302 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	ATE [Oral] = 1300 mg/kg	[1] [2]
cyclohexane	EC: 203-806-2 CAS: 110-82-7 Index: 601-017-00-1	≤1.3	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]
n-hexane	EC: 203-777-6 CAS: 110-54-3 Index: 601-037-00-0	<1	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361f STOT SE 3, H336 STOT RE 1, H372 (nervous system) Asp. Tox. 1, H304 Aquatic Chronic 2, H411 **See Section 16 for the full text of the H statements declared above.**	-	[1] [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 : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.

SECTION 4: First aid measures

Inhalation : Get medical attention immediately. Call a poison center or physician. 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. 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.

Skin contact : Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and 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. Chemical burns must be treated promptly by a physician. 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. Chemical burns must be treated promptly by a physician. 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

Over-exposure signs/symptoms

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

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

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

Ingestion : Adverse symptoms may include the following:
stomach pains
nausea or vomiting

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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, 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. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials:
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. Do not breathe 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Avoid release to the environment. Avoid contact with eyes, skin and clothing. Do not ingest. Empty containers retain product residue and can be hazardous. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse container. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Do not breathe vapour or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not swallow.

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 tonnes 100 tonnes	50000 tonnes 200 tonnes

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
cumene	**NAOSH (Ireland, 4/2024)** Carc 1B. Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 10 ppm. OELV 8 hours: 50 mg/m³. OELV 15 minutes: 50 ppm. OELV 15 minutes: 250 mg/m³. **EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 10 ppm. TWA 8 hours: 50 mg/m³. STEL 15 minutes: 50 ppm.

SECTION 8: Exposure controls/personal protection

	STEL 15 minutes: 250 mg/m³.
o-xylene	**NAOSH (Ireland, 4/2024)** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 50 ppm. OELV 8 hours: 221 mg/m³. OELV 15 minutes: 100 ppm. OELV 15 minutes: 442 mg/m³. **EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
ethylbenzene	**NAOSH (Ireland, 4/2024)** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 100 ppm. OELV 8 hours: 442 mg/m³. OELV 15 minutes: 200 ppm. OELV 15 minutes: 884 mg/m³. **EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 100 ppm. TWA 8 hours: 442 mg/m³. STEL 15 minutes: 200 ppm. STEL 15 minutes: 884 mg/m³.
octane	**NAOSH (Ireland, 4/2024)** Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV 8 hours: 300 ppm. OELV 8 hours: 1450 mg/m³.
methylcyclohexane	**NAOSH (Ireland, 4/2024)** Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV 8 hours: 400 ppm. OELV 8 hours: 1600 mg/m³.
nonane	**NAOSH (Ireland, 4/2024) [nonane]** Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV 8 hours: 200 ppm. OELV 8 hours: 1050 mg/m³.
benzene	**NAOSH (Ireland, 4/2024)** Carc 1A, Muta 1B. Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 0.5 ppm. OELV 8 hours: 1.65 mg/m³. **EU OEL (Europe, 3/2024)** Absorbed through skin. TWA 8 hours: 0.5 ppm. TWA 8 hours: 1.65 mg/m³.
toluene	**NAOSH (Ireland, 4/2024)** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 50 ppm. OELV 8 hours: 192 mg/m³. OELV 15 minutes: 100 ppm. OELV 15 minutes: 384 mg/m³. **EU OEL (Europe, 1/2022)** Absorbed through skin. TWA 8 hours: 192 mg/m³. TWA 8 hours: 50 ppm. STEL 15 minutes: 384 mg/m³. STEL 15 minutes: 100 ppm.
heptane	**NAOSH (Ireland, 4/2024)** Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 500 ppm. OELV 8 hours: 2085 mg/m³. **EU OEL (Europe, 1/2022)** TWA 8 hours: 500 ppm. TWA 8 hours: 2085 mg/m³.

SECTION 8: Exposure controls/personal protection

cyclohexene	**NAOSH (Ireland, 4/2024)** Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV 8 hours: 300 ppm. OELV 8 hours: 1015 mg/m³.
cyclohexane	**NAOSH (Ireland, 4/2024)** Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 200 ppm. OELV 8 hours: 700 mg/m³. **EU OEL (Europe, 1/2022)** TWA 8 hours: 700 mg/m³. TWA 8 hours: 200 ppm.
n-hexane	**NAOSH (Ireland, 4/2024)** Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV 8 hours: 20 ppm. OELV 8 hours: 72 mg/m³. **EU OEL (Europe, 1/2022)** TWA 8 hours: 72 mg/m³. TWA 8 hours: 20 ppm.

Biological exposure indices

Product/ingredient name	Exposure indices
o-xylene	**NAOSH BGVs (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.
ethylbenzene	**NAOSH BGVs (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.
benzene	**NAOSH BGVs (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.
toluene	**NAOSH BGVs (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.
n-hexane	**NAOSH BGVs (Ireland, 1/2011)** BMGV: 0.4 mg/l, 2,5-hexanedione [in urine]. Sampling time: end of shift at end of workweek.

SECTION 8: Exposure controls/personal protection

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

Product/ingredient name	Result	
cumene	DNEL - General population - Long term - Dermal	1.2 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	15.4 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	100 mg/m³
	DNEL - Workers - Short term - Inhalation	250 mg/m³
	DNEL - General population - Long term - Oral	5 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	16.6 mg/m³
ethylcyclohexane	DNEL - Workers - Long term - Dermal	0.26 mg/kg bw/day
	DNEL - General population - Long term - Dermal	0.33 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	0.702 mg/m³
	DNEL - Workers - Long term - Inhalation	0.704 mg/m³
	DNEL - General population - Short term - Inhalation	113.25 mg/m³
	DNEL - Workers - Short term - Inhalation	456 mg/m³
o-xylene	DNEL - General population - Long term - Oral	2.5 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	65.3 mg/m³
	DNEL - General population - Long term - Inhalation	65.3 mg/m³
	DNEL - General population - Long term - Dermal	125 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	212 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	221 mg/m³
	DNEL - Workers - Long term - Inhalation	221 mg/m³
	DNEL - General population - Short term - Inhalation	260 mg/m³
	DNEL - General population - Short term - Inhalation	260 mg/m³
	DNEL - Workers - Short term - Inhalation	442 mg/m³
	DNEL - Workers - Short term - Inhalation	442 mg/m³
ethylbenzene	DMEL - Workers - Long term - Inhalation	442 mg/m³
	DMEL - Workers - Short term - Inhalation	884 mg/m³
	DNEL - General population - Long term - Oral	1.6 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	15 mg/m³
	DNEL - Workers - Long term - Inhalation	77 mg/m³
	DNEL - Workers - Long term - Dermal	180 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	293 mg/m³
isopropylcyclohexane	DNEL - General population - Short term - Oral	0.5 mg/kg bw/day
	DNEL - General population - Long term - Oral	0.5 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	3.1 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	8.05 mg/m³
	DNEL - General population - Long term - Inhalation	8.05 mg/m³
	DNEL - Workers - Short term - Inhalation	32.4 mg/m³
	DNEL - Workers - Long term - Inhalation	32.4 mg/m³
octane	DNEL - General population - Long term - Inhalation	608 mg/m³
	DNEL - General population - Long term - Oral	699 mg/kg bw/day
	DNEL - General population - Long term - Dermal	699 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	773 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	2035 mg/m³
2,2,4-trimethylpentane	DNEL - General population - Long term - Inhalation	608 mg/m³
	DNEL - General population - Long term - Oral	699 mg/kg bw/day
	DNEL - General population - Long term - Dermal	699 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	773 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	2035 mg/m³
methylcyclohexane	DNEL - General population - Long term - Oral	0.4 mg/kg bw/day
	DNEL - General population - Long term - Dermal	0.8 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	1.7 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	16 mg/m³

SECTION 8: Exposure controls/personal protection

	DNEL - Workers - Long term - Inhalation	64.3 mg/m³
	DNEL - General population - Short term - Inhalation	1016 mg/m³
	DNEL - Workers - Short term - Inhalation	1354.6 mg/m³
nonane	DNEL - General population - Long term - Inhalation	608 mg/m³
	DNEL - General population - Long term - Oral	699 mg/kg bw/day
	DNEL - General population - Long term - Dermal	699 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	773 mg/kg bw/day
	DNEL - Workers - Long term - Inhalation	2035 mg/m³
benzene	DNEL - General population - Long term - Inhalation	0.14 mg/m³
toluene	DNEL - General population - Long term - Oral	8.13 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	56.5 mg/m³
	DNEL - General population - Long term - Inhalation	56.5 mg/m³
	DNEL - Workers - Long term - Inhalation	192 mg/m³
	DNEL - Workers - Long term - Inhalation	192 mg/m³
	DNEL - General population - Long term - Dermal	226 mg/kg bw/day
	DNEL - General population - Short term - Inhalation	226 mg/m³
	DNEL - General population - Short term - Inhalation	226 mg/m³
	DNEL - Workers - Long term - Dermal	384 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	384 mg/m³
	DNEL - Workers - Short term - Inhalation	384 mg/m³
heptane	DNEL - General population - Long term - Oral	149 mg/kg bw/day
	DNEL - General population - Long term - Dermal	149 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	300 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	447 mg/m³
	DNEL - Workers - Long term - Inhalation	2085 mg/m³
cyclohexene	DNEL - General population - Long term - Oral	500 µg/kg bw/day
cyclohexane	DNEL - General population - Long term - Oral	59.4 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	206 mg/m³
	DNEL - General population - Long term - Inhalation	206 mg/m³
	DNEL - General population - Short term - Inhalation	412 mg/m³
	DNEL - General population - Short term - Inhalation	412 mg/m³
	DNEL - Workers - Long term - Inhalation	700 mg/m³
	DNEL - Workers - Long term - Inhalation	700 mg/m³
	DNEL - General population - Long term - Dermal	1186 mg/kg bw/day
	DNEL - Workers - Short term - Inhalation	1400 mg/m³
	DNEL - Workers - Short term - Inhalation	1400 mg/m³
	DNEL - Workers - Long term - Dermal	2016 mg/kg bw/day
n-hexane	DNEL - General population - Long term - Oral	4 mg/kg bw/day
	DNEL - General population - Long term - Dermal	5.3 mg/kg bw/day
	DNEL - Workers - Long term - Dermal	11 mg/kg bw/day
	DNEL - General population - Long term - Inhalation	16 mg/m³
	DNEL - Workers - Long term - Inhalation	75 mg/m³

PNECs

Not 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.

SECTION 8: Exposure controls/personal protection

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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

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. Recommended: Ensure an MSHA/NIOSH-approved respirator or equivalent is used.

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.

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.

Boiling point or initial boiling point and boiling range : Not available.

Flammability : Not applicable.

Lower and upper explosion limit/flammability limit : 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.

SECTION 9: Physical and chemical properties

pH : Not available.

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C): Not available.

Solubility :

Media	Result
water	Insoluble

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
cyclohexane	93.00791	12.4	-	276.02	36.8	-
cyclohexene	89.25759	11.9	-	249.77	33.3	-

Relative density : 0.8

Density : 0.8 g/cm³

Relative vapour density : Not available.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosive properties : Not available.

Oxidising properties : Not available.

9.2.2 Other safety characteristics

Miscible with water : No.

Evaporation rate : Not available.

Physical/chemical properties comments : Not available.

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	
cumene	Rat - Oral - LD50	2.9 g/kg
	Rat - Inhalation - LC50 Dusts and mists	39000 mg/m³ [4 hours]
decane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
	Rabbit - Male, Female - Dermal - LD50	>5000 mg/kg
o-xylene	Rat - Oral - LD50	3567 mg/kg
	Rat - Inhalation - LC50 Vapour	6350 ppm [4 hours]
	Rat - Inhalation - LC50 Vapour	27.559 mg/l [4 hours]
ethylbenzene	Rabbit - Dermal - LD50	>5000 mg/kg
	Rat - Oral - LD50	3500 mg/kg
isopropylcyclohexane	Rat - Male, Female - Oral - LD50	>10000 mg/kg
	Rat - Dermal - LD50	>5000 mg/kg
	Rat - Male, Female - Inhalation - LC50 Dusts and mists	>5.04 mg/l [4 hours]
undecane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
tetradecane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
	Rat - Inhalation - LC50 Dusts and mists	9.3 mg/l [4 hours]
octane	Rat - Oral - LD50	>5000 mg/kg
	Rat - Inhalation - LC50 Vapour	118 g/m³ [4 hours]
	Rat - Inhalation - LC50 Vapour	25260 ppm [4 hours]
2,2,4-trimethylpentane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
	Rat - Male, Female - Inhalation - LC50 Vapour	>33.52 mg/l [4 hours]
dodecane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
	Rabbit - Male, Female - Dermal - LD50	>5000 mg/kg
nonane	Rat - Male, Female - Oral - LD50	>5000 mg/kg
	Rat - Inhalation - LC50 Vapour	3200 ppm [4 hours]
	Rat - Inhalation - LC50 Vapour	17000 mg/m³ [4 hours]
benzene	Rat - Oral - LD50	6400 mg/kg
toluene	Rat - Dermal - LD50	12000 mg/kg
	Rat - Inhalation - LC50 Vapour	49 g/m³ [4 hours]
heptane	Rat - Inhalation - LC50 Vapour	103 g/m³ [4 hours]
	Rat - Inhalation - LC50 Vapour	48000 ppm [4 hours]
cyclohexene	Rat - Oral - LD50	1300 mg/kg
cyclohexane	Rat - Oral - LD50	6240 mg/kg
	Rabbit - Dermal - LD50	>5500 mg/kg
	Rat - Male, Female - Inhalation - LC50 Vapour	>32880 mg/m³ [4 hours]
n-hexane	Rat - Oral - LD50	15840 mg/kg
	Rat - Inhalation - LC50 Vapour	169.2 mg/l [4 hours]

Conclusion/Summary [Product] : Not available.

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	79479.7	14342.6	N/A	49.0	N/A
cumene	2900	N/A	N/A	N/A	39
o-xylene	3000	1100	N/A	11	N/A
ethylbenzene	3500	N/A	N/A	11	N/A
tetradecane	N/A	N/A	N/A	N/A	9.3
octane	N/A	N/A	N/A	118	N/A
nonane	N/A	N/A	N/A	17	N/A
benzene	6400	N/A	N/A	N/A	N/A
toluene	N/A	12000	N/A	49	N/A
heptane	N/A	N/A	N/A	103	N/A
cyclohexene	1300	N/A	N/A	N/A	N/A

SECTION 11: Toxicological information

cyclohexane	6240	N/A	N/A	N/A	N/A
n-hexane	15840	N/A	N/A	169.2	N/A

Skin corrosion/irritation

Product/ingredient name	Result	
cumene	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 10 mg
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 100 mg
ethylbenzene	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 15 mg
dodecane	Rat - Skin - Moderate irritant	Duration of treatment/ exposure: 96 hours Amount/concentration applied: 300 uL
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 0.05 Ml
methylcyclohexane	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 uL
nonane	Rat - Skin - Moderate irritant	Duration of treatment/ exposure: 96 hours Amount/concentration applied: 300 uL
benzene	Rat - Skin - Mild irritant	Duration of treatment/ exposure: 8 hours Amount/concentration applied: 60 uL
	Rabbit - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 15 mg
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 20 mg
toluene	Rabbit - Skin - Mild irritant	Amount/concentration applied: 435 mg
	Pig - Skin - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 250 uL
	Rabbit - Skin - Moderate irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 20 mg
	Rabbit - Skin - Moderate irritant	Amount/concentration applied: 500 mg

Conclusion/Summary [Product] : Repeated exposure may cause skin dryness or cracking.

Ingredient name	Conclusion/Summary

SECTION 11: Toxicological information

cumene	Slightly irritating to the skin.
ethylbenzene	Repeated exposure may cause skin dryness or cracking.
tetradecane	Causes mild skin irritation.
nonane	Repeated exposure may cause skin dryness or cracking.

Serious eye damage/eye irritation

Product/ingredient name	Result	
cumene	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 500 mg
	Rabbit - Eyes - Mild irritant	Amount/concentration applied: 86 mg
ethylbenzene	Rabbit - Eyes - Severe irritant	Amount/concentration applied: 500 mg
methylcyclohexane	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 24 hours Amount/concentration applied: 100 uL
benzene	Rabbit - Eyes - Moderate irritant	Amount/concentration applied: 88 mg
	Rabbit - Eyes - Severe irritant	Amount/concentration applied: 0.1 Ml
toluene	Rabbit - Eyes - Mild irritant	Duration of treatment/ exposure: 0.5 minutes Amount/concentration applied: 100 mg
	Rabbit - Eyes - Mild irritant	Amount/concentration applied: 870 ug
cyclohexane	Rabbit - Eyes - Severe irritant	Amount/concentration applied: 0.1 Ml
n-hexane	Rabbit - Eyes - Mild irritant	Amount/concentration applied: 10 mg

Conclusion/Summary [Product] : Not available.

Ingredient name	Conclusion/Summary
cumene	Slightly irritating to the eyes.
tetradecane	May cause eye irritation.

Respiratory corrosion/irritation

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Skin

Conclusion/Summary [Product] : Not available.

Respiratory

Conclusion/Summary [Product] : Not available.

SECTION 11: Toxicological information

Germ cell mutagenicity

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Conclusion/Summary [Product] : Not available.

Reproductive toxicity

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
cumene	STOT SE 3, H335 (Respiratory tract irritation)
ethylcyclohexane	STOT SE 3, H336 (Narcotic effects)
o-xylene	STOT SE 3, H335 (Respiratory tract irritation)
octane	STOT SE 3, H336 (Narcotic effects)
2,2,4-trimethylpentane	STOT SE 3, H336 (Narcotic effects)
methylcyclohexane	STOT SE 3, H336 (Narcotic effects)
nonane	STOT SE 3, H336 (Narcotic effects)
toluene	STOT SE 3, H336 (Narcotic effects)
4-methylcyclohexene	STOT SE 3, H335 (Respiratory tract irritation)
heptane	STOT SE 3, H336 (Narcotic effects)
2,3-dimethylpentane	STOT SE 3, H336 (Narcotic effects)
cyclohexane	STOT SE 3, H336 (Narcotic effects)
n-hexane	STOT SE 3, H336 (Narcotic effects)

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result
ethylbenzene	STOT RE 2, H373 (hearing organs)
benzene	STOT RE 1, H372
toluene	STOT RE 2, H373 (nervous system) (inhalation)
n-hexane	STOT RE 1, H372 (nervous system)

Aspiration hazard

Product/ingredient name	Result
Testmix	ASPIRATION HAZARD - Category 1
cumene	ASPIRATION HAZARD - Category 1
ethylcyclohexane	ASPIRATION HAZARD - Category 1
decane	ASPIRATION HAZARD - Category 1
o-xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1
butylbenzene	ASPIRATION HAZARD - Category 1
isopropylcyclohexane	ASPIRATION HAZARD - Category 1
undecane	ASPIRATION HAZARD - Category 1
tetradecane	ASPIRATION HAZARD - Category 1
octane	ASPIRATION HAZARD - Category 1
2,2,4-trimethylpentane	ASPIRATION HAZARD - Category 1
dodecane	ASPIRATION HAZARD - Category 1
methylcyclohexane	ASPIRATION HAZARD - Category 1
nonane	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1
toluene	ASPIRATION HAZARD - Category 1
4-methylcyclohexene	ASPIRATION HAZARD - Category 1
heptane	ASPIRATION HAZARD - Category 1
2,3-dimethylpentane	ASPIRATION HAZARD - Category 1

SECTION 11: Toxicological information

cyclohexene	ASPIRATION HAZARD - Category 1
cyclohexane	ASPIRATION HAZARD - Category 1
n-hexane	ASPIRATION HAZARD - Category 1

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

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : Causes severe burns.

Ingestion : Corrosive to the digestive tract. Causes burns. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

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

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

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

Ingestion : Adverse symptoms may include the following:
stomach pains
nausea or vomiting

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

Conclusion/Summary [Product] : Not available.

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 : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	
cumene	Acute - LC50 - Fresh water	2700 µg/l [96 hours]
	Acute - EC50 - Marine water	7.4 mg/l [48 hours]
	Chronic - NOEC - Fresh water	0.35 mg/l [21 days]
	Acute - EC50 - Fresh water	2600 µg/l [72 hours]
ethylcyclohexane	Acute - LC50 - Marine water	8800 µg/l [96 hours]
	Acute - EC50 - Fresh water	0.406 mg/l [72 hours]
	Acute - NOEC - Fresh water	0.218 mg/l [72 hours]
decane	Acute - LC50 - Fresh water	18 mg/l [48 hours]
	Acute - LC50 - Marine water	>500 mg/l [96 hours]
	Acute - EC50 - Fresh water	89 mg/l [96 hours]
o-xylene	Acute - LC50 - Fresh water	7600 µg/l [96 hours]
	Acute - EC50 - Fresh water	1.39 mg/l [48 hours]
	Chronic - NOEC - Fresh water	1.57 mg/l [21 days]
	Chronic - NOEC - Fresh water	0.714 mg/l [35 days]
	Acute - EC50 - Fresh water	4700 µg/l [72 hours]
ethylbenzene	Acute - EC50 - Fresh water	2.93 mg/l [48 hours]
	Acute - LC50 - Fresh water	4200 µg/l [96 hours]
	Acute - EC50 - Fresh water	3600 µg/l [96 hours]
butylbenzene	Acute - EC50 - Fresh water	340 µg/l [48 hours]
methylcyclohexane	Acute - LC50 - Marine water	5800 µg/l [96 hours]
	Acute - EC50 - Fresh water	0.326 mg/l [48 hours]
benzene	Acute - LC50 - Fresh water	5.28 µl/l [96 hours]
	Acute - EC50 - Fresh water	9.23 mg/l [48 hours]
	Chronic - NOEC - Marine water	1.5 to 5.4 µl/l [4 weeks]
	Chronic - NOEC - Fresh water	98 mg/l [21 days]
	Chronic - EC10 - Fresh water	>1360 mg/l [96 hours]
	Acute - EC50 - Fresh water	29 mg/l [72 hours]
toluene	Acute - EC50 - Fresh water	6000 µg/l [48 hours]
	Acute - LC50 - Fresh water	5500 µg/l [96 hours]
	Chronic - NOEC	0.74 mg/l [7 days]
	Acute - EC50 - Fresh water	12.5 mg/l [72 hours]
heptane	Acute - LC50 - Fresh water	375 mg/l [96 hours]
cyclohexene	Chronic - NOEC - Fresh water	0.74 mg/l [21 days]
	Acute - EC50 - Fresh water	≥18 mg/l [72 hours]
	Acute - EC50 - Fresh water	5300 µg/l [48 hours]
	Acute - EC50 - Fresh water	4500 µg/l [96 hours]
	Acute - NOEC - Fresh water	18 mg/l [72 hours]
cyclohexane	Acute - LC50 - Fresh water	4530 µg/l [96 hours]
n-hexane	Acute - LC50 - Fresh water	2500 µg/l [96 hours]

Conclusion/Summary [Product] : Not available.

12.2 Persistence and degradability

Product/ingredient name	Result		
ethylcyclohexane	Aerobic	0% [28 days] - Not readily	Aerobic
o-xylene	Aerobic	98% [28 days] - Readily	Aerobic
ethylbenzene	Aerobic	70 to 80% [28 days] - Readily	Aerobic
isopropylcyclohexane	Aerobic - 15 mg/l	1% [28 days] - Not readily	Aerobic - 15 mg/l
methylcyclohexane	Aerobic - 2.45 mg/l	0% [28 days] - Not readily	Aerobic - 2.45 mg/l
cyclohexene	Aerobic	0% [28 days] - Not readily	Aerobic

Conclusion/Summary [Product] : Not available.

SECTION 12: Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
cumene	-	-	Not readily
ethylcyclohexane	-	-	Not readily
decane	-	-	Readily
o-xylene	-	-	Readily
ethylbenzene	-	-	Readily
isopropylcyclohexane	-	-	Not readily
undecane	-	-	Readily
tetradecane	-	-	Readily
octane	-	-	Readily
2,2,4-trimethylpentane	-	-	Inherent
dodecane	-	-	Readily
methylcyclohexane	-	-	Not readily
nonane	-	-	Readily
benzene	-	-	Readily
toluene	-	-	Readily
heptane	-	-	Readily
cyclohexene	-	-	Not readily
cyclohexane	-	-	Readily
n-hexane	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
cumene	3.55	35.48	Low
trans-bicyclo[4.4.0]decane	-	1905.46	High
heptylbenzene	5.37	-	High
ethylcyclohexane	4.56	-	High
decane	5.86	-	High
o-xylene	3.12	8.1 to 25.9	Low
ethylbenzene	3.6	-	Low
butylbenzene	4.38	-	High
isopropylcyclohexane	6	-	High
undecane	6.42	-	High
tetradecane	8.11	-	High
octane	5.18	198.7	Low
2,2,4-trimethylpentane	4.08	231	Low
dodecane	6.98	239.88	Low
methylcyclohexane	3.61	186.21	Low
nonane	5.65	105	Low
benzene	2.13	11	Low
toluene	2.73	90	Low
heptane	4.66	552	High
cyclohexene	2.99	23 to 45 [OECD 305 E]	Low
cyclohexane	3.44	167	Low
n-hexane	4	501.187	High

SECTION 12: Ecological information

12.4 Mobility in soil

Soil/water partition coefficient

Product/ingredient name	logKoc	Koc
cumene	2.7	521.484
heptylbenzene	3.2	1427.15
ethylcyclohexane	2.5	282.187
decane	2.7	454.45
o-xylene	2.3	178.668
ethylbenzene	2.2	170.406
butylbenzene	3.4	2446.78
isopropylcyclohexane	2.9	845.534
undecane	2.9	715.928
tetradecane	3.5	3056.69
octane	2.3	191.495
2,2,4-trimethylpentane	2.4	268.714
dodecane	3.2	1557.81
methylcyclohexane	2.5	302.314
nonane	2.5	295.059
benzene	1.7	56.1326
toluene	2.1	117.115
4-methylcyclohexene	2.4	252.566
heptane	2.5	321.749
2,3-dimethylpentane	2.4	258.131
cyclohexene	1.9	88.2862
cyclohexane	2	96.5031
n-hexane	2.2	165.951

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
cumene	N/A	N/A	Yes	Yes	No	N/A	No
trans-bicyclo[4.4.0]decane	No	N/A	N/A	No	N/A	N/A	N/A
heptylbenzene	No	N/A	No	N/A	No	N/A	No
ethylcyclohexane	No	N/A	Yes	No	No	N/A	No
decane	No	N/A	Yes	No	No	N/A	No
o-xylene	No	N/A	Yes	No	No	N/A	No
ethylbenzene	No	No	No	No	No	No	No
butylbenzene	No	N/A	No	No	No	N/A	No
isopropylcyclohexane	No	N/A	Yes	No	No	N/A	No
undecane	No	N/A	Yes	No	No	N/A	No
tetradecane	No	N/A	No	No	No	N/A	No
octane	No	No	No	No	No	No	No
2,2,4-trimethylpentane	No	N/A	Yes	No	No	N/A	No
dodecane	No	N/A	No	No	No	N/A	No
methylcyclohexane	No	No	No	No	No	No	No
nonane	No	N/A	Yes	No	No	N/A	No
benzene	N/A	N/A	Yes	Yes	N/A	N/A	Yes
toluene	N/A	N/A	Yes	Yes	No	N/A	No
4-methylcyclohexene	No	N/A	Yes	No	No	N/A	No
heptane	No	No	No	No	No	No	No
2,3-dimethylpentane	No	No	No	No	No	No	No
cyclohexene	No	N/A	Yes	No	N/A	N/A	Yes
cyclohexane	No	No	No	No	No	No	No
n-hexane	No	No	No	No	No	No	No

Mobility : Not available.

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

SECTION 12: Ecological information

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
cumene	No	N/A	No	Yes	No	N/A	No
trans-bicyclo[4.4.0]decane	No	N/A	No	No	No	N/A	No
heptylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ethylcyclohexane	No	N/A	N/A	No	N/A	N/A	N/A
decane	No	N/A	N/A	No	N/A	N/A	N/A
o-xylene	No	N/A	No	No	No	N/A	No
ethylbenzene	N/A	N/A	N/A	Yes	N/A	N/A	N/A
butylbenzene	No	N/A	N/A	No	N/A	N/A	N/A
isopropylcyclohexane	No	N/A	N/A	No	N/A	N/A	N/A
undecane	No	N/A	N/A	No	N/A	N/A	N/A
tetradecane	No	N/A	N/A	No	N/A	N/A	N/A
octane	No	N/A	No	No	No	N/A	No
2,2,4-trimethylpentane	No	N/A	No	No	No	N/A	No
dodecane	No	N/A	No	No	No	N/A	No
methylcyclohexane	No	N/A	No	No	No	N/A	No
nonane	No	N/A	No	No	No	N/A	No
benzene	No	N/A	No	Yes	No	N/A	No
toluene	No	N/A	No	Yes	No	N/A	No
4-methylcyclohexene	No	N/A	N/A	No	N/A	N/A	N/A
heptane	No	N/A	No	No	No	N/A	No
2,3-dimethylpentane	No	N/A	N/A	No	N/A	N/A	N/A
cyclohexene	No	N/A	No	No	No	N/A	No
cyclohexane	No	N/A	No	No	No	N/A	No
n-hexane	No	N/A	No	Yes	No	N/A	No

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
cumene	No	N/A	No	Yes	No	N/A	No
trans-bicyclo[4.4.0]decane	No	N/A	No	No	No	N/A	No
heptylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ethylcyclohexane	No	N/A	N/A	No	N/A	N/A	N/A
decane	No	N/A	N/A	No	N/A	N/A	N/A
o-xylene	No	N/A	No	No	No	N/A	No
ethylbenzene	No	No	No	No	No	No	No
butylbenzene	No	N/A	N/A	No	N/A	N/A	N/A
isopropylcyclohexane	No	N/A	N/A	No	N/A	N/A	N/A
undecane	No	N/A	N/A	No	N/A	N/A	N/A
tetradecane	No	N/A	N/A	No	N/A	N/A	N/A
octane	No	No	No	No	No	No	No
2,2,4-trimethylpentane	No	N/A	No	No	No	N/A	No
dodecane	No	N/A	No	No	No	N/A	No
methylcyclohexane	No	No	No	No	No	No	No
nonane	No	N/A	No	No	No	N/A	No
benzene	No	N/A	No	Yes	No	N/A	No
toluene	No	N/A	No	Yes	No	N/A	No
4-methylcyclohexene	No	N/A	N/A	No	N/A	N/A	N/A
heptane	No	No	No	No	No	No	No
2,3-dimethylpentane	No	No	No	No	No	No	No
cyclohexene	No	N/A	No	No	No	N/A	No
cyclohexane	No	No	No	No	No	No	No
n-hexane	No	No	No	No	No	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

SECTION 12: Ecological information

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

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 : 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. The generation of waste should be avoided or minimised wherever possible. 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.

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 640C
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

SECTION 14: Transport information

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.

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

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

None of the components are listed / The components are not impacted by a restriction

Labelling : Restricted to professional users.

Other EU regulations

Ozone depleting substances (EU 2024/590)

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

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)

SECTION 15: Regulatory information

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	:	Not determined.
Canada	:	Not determined.
China	:	Not determined.
Eurasian Economic Union	:	**Russian Federation inventory**: Not determined.
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 :

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
B = Bioaccumulative
BCF = Bioconcentration Factor
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
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
IMO = International Maritime Organization
M = Mobile
N/A = Not available
P = Persistent
PBT = Persistent, Bioaccumulative and Toxic
PMT = Persistent, Mobile and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SGG = Segregation Group
T = Toxic
vB = Very Bioaccumulative
vM = Very Mobile
vP = Very Persistent
vPvB = Very Persistent and Very Bioaccumulative
vPvM = Very Persistent and Very Mobile

SECTION 16: Other information

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 Corr. 1B, H314	Calculation method
Muta. 1B, H340	Calculation method
Carc. 1A, H350	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 2, H411	Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
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
Carc. 1B	CARCINOGENICITY - Category 1B
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
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

SECTION 16: Other information

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