

Name of the product: **Auto Coolant – Antifreeze Long Life G12, -36°C ready to use.**Internal code of the product: **G12/036**Page **1** of **18**Date of issue: **08.05.2011.**Date of revision: **04.09.2019.****SECTION 1. Identification of the substance / mixture and of the company / undertaking.****1.1. Product identifier:**

Substance name: Auto Coolant – Antifreeze Long Life G12, -36°C, ready to use.
Substance manufacturer: "CrossChem" Ltd.
REACH Registration No.: Not applicable for mixtures.
CAS No.: Not applicable for mixtures.
EC No.: Not applicable for mixtures.
Index No.: Not applicable for mixtures.

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

SU21 – Consumer uses;
SU22 – Professional uses;
PC4 – Anti-Freeze and de-icing products;
PC16 – Heat transfer fluids;
PC21 – Laboratory chemicals;
PROC5 – Mixing or blending in batch processes;
PROC8b – Transfer of substance or mixture (charging and discharging) at dedicated facilities;
PROC20 – Use of functional fluids in small devices;
ERC2 – Formulation into mixture;
ERC7 – Use of functional fluid at industrial site;
ERC9a – Widespread use of functional fluid (indoor);
ERC9b – Widespread use of functional fluid (outdoor);
ERC10a – Widespread use of articles with low release (outdoor).

Uses advised against: Not applicable.**Reason why uses advised against:** Not applicable.**1.3. Details of the Supplier of the safety data sheet:**

Manufacturer / Supplier: "CrossChem" Ltd.;
Street address / P.O. Box: "Naftaluka", Olaines pagasts, Olaines novads,
LV-2127, Latvia. (Office, factory, warehouse).
National Registration No.: 40003888244
Telephone number: +371 67491030 (Administration)
E-mail: info@crosschem.lv
Homepage: <https://crosschem.lv/>
E-mail address of competent person, responsible for the SDS:
andris.matis@crosschem.lv

1.4. Emergency telephone number:State Fire and Rescue Service: **(+371) 112****Working hours:** 24 hours a day, 365 days a year.National Toxicology Center: **(+371) 67042473; (+371) 67000610****Opening hours:** Working days from 8:00 to 17:00, weekends and public holidays from 9:00 to 15:30.**Other notes:** Help is provided in Latvian, Russian and English languages.**SECTION 2. Hazards identification.****2.1 Classification of the substance or mixture:****Classification according to Regulation (EC) No. 1272/2008 (CLP):**

Acute Tox 4 (**H302** – Harmful if swallowed);
Repr. 2 (**H361** – Suspected of damaging fertility or the unborn child);
STOT-RE 2. (**H373** – May cause damage to organs through prolonged or repeated exposure).

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2.2 Label elements:

Labelling according to Regulation (EC) No. 1272/2008 (CLP):

According to Regulation (EC) No. 1272/2008 (CLP), product needs labelling:

- H302** – Harmful if swallowed;
- H361** – Suspected of damaging fertility or the unborn child;
- H373** – May cause damage to organs through prolonged or repeated exposure.

Hazard pictograms:

Signal word:

Hazard statements:

Precautionary statements:

- GHS07** – Harmful;
 - GHS08** – Health hazard.
- Wng. – Warning.
- H302** – Harmful if swallowed;
 - H361** – Suspected of damaging fertility or the unborn child;
 - H373** – May cause damage to organs through prolonged or repeated exposure.
- P201** – Obtain special instructions before use;
 - P260** – Do not breathe fume/ gas/mist/vapours/spray;
 - P264** – Wash thoroughly after handling;
 - P270** – Do not eat, drink or smoke when using this product;
 - P280** – Wear protective gloves/protective clothing/eye protection/face protection;
 - P301+P312** – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell;
 - P308+P313** – IF exposed or concerned: Get medical advice/attention;
 - P314** – Get medical advice/attention if you feel unwell;
 - P330** – Rinse mouth;
 - P405** – Store locked up;
 - P501** – Dispose of contents/container in accordance to local and international regulations.

Supplemental Hazard information (EU): If product contacts eyes, it may cause eye irritation.

2.3. Other hazards:

Not applicable.

SECTION 3. Composition / information on ingredients.

3.1. Substance:

Not applicable.

3.2. Mixtures:

Name of the substance	CAS No.	EC No.	REACH No.	Classification according to (EC) No. 1272/2008.	W%/W
Ethylene glycol	107-21-1	203-473-3	01-211945681 6-28-XXXX	Acute Tox 4. (H302 – Harmful if swallowed); STOT-RE 2. (H373 – May cause damage to organs through prolonged or repeated exposure).	40 – 60 %
Water	7732-18-5	231-791-2	Not applicable.	Not applicable.	40 – 60 %
Sodium 2-ethylhexanoate	19766-89-3	243-283-8	01-211997293 7-17-XXXX	Repr. 2 (H361 – Suspected of damaging fertility or the unborn child); Skin Irrit. 2 (H315 – Causes skin irritation); Eye Irrit. 2 (H319 – Causes serious eye irritation).	1 – 5 %

SECTION 4. First aid measures.



4.1. Description of first aid measures:

General information:

Remove contaminated, saturated clothing immediately. In case of accident or unwellness, seek medical advice immediately. Keep the victim calm. If the person is unconscious, place person in stable recovery position. Consult a physician. Show this safety data sheet to the doctor in attendance.

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Following inhalation:

If inhaled, remove the person from the hazardous area to fresh air. Lay down the person in a quiet place and protect him against hypothermia. If not breathing, give artificial resuscitation (CPR). If breathing is difficult, administer oxygen. In every cases where there is doubt of person's life or if symptoms remain, seek medical advice.

Following skin contact:

Remove contaminated clothing and shoes. Wash the affected area thoroughly with soap and plenty of water. Wash clothing before reuse. After massive skin contact and long-term skin contamination or if irritation remains, seek medical advice.

Following eye contact:

Promptly flush eyes with water, continuing for at least 15 minutes, occasionally lifting the upper and lower eyelids, to ensure thorough rinsing. Remove contact lenses if possible and if safe to do. After rinsing eyes with water, rinse eyes with physiological saline solution. If irritation, redness or blinking persists, consult a doctor immediately.

Following ingestion:

If the product has been swallowed, immediately rinse mouth with water, do not induce vomiting. If the person is conscious have him/ her to drink 1 glass of water (200 ml) or better, if available: apply charcoal (3 tablespoons as a suspension in a glass of water - only helpful within a few minutes after ingestion). Place the person in a stable lateral position. Keep affected person warm and treat for shock. Never introduce anything into the mouth of an unconscious person. As soon as ingestion of product has happened, if possible, give person mixture of ethanol and glucose to saturate the enzyme alcohol dehydrogenase and prevent metabolism of ethylene glycol to its toxic metabolites. If the physician's arrival is delayed (or during transportation to hospital), the alcohol level must be maintained with appropriate maintenance doses. If the person feels unwell, seek medical advice.

If available, administer fomepizole (4-methylpyrazole), a chemical inhibitor of alcohol dehydrogenase, an effective antidote for ethylene glycol poisoning.

Self-protection of the first aider:

Pay attention to self protection. Comply with general hygiene requirements. Avoid inhalation of mist and vapour. Product contact with eyes is prohibited. Avoid repeated or prolonged contact with skin or clothing. Wear suitable protective clothing and gloves.

4.2. Most important symptoms and effects, both acute and delayed:

Eyes: Weak to moderate irritation after direct contact with the solution or with concentrated vapours/aerosols (hyperaemia, development of oedema, nystagmus, changes in visual acuity).

Skin: Slight to negligible irritation.

Inhalation: Mucosa irritation from approx. 55 ppm.

Ingestion/resorption: Depending on the dosage, exitus letalis is possible in all toxicity stages.

1. *gastrointestinal* - irritation, nausea, vomiting;

2. *cardiopulmonary manifestation* - Tachycardia, tachypnoea, hypertension, pulmonary oedema or congestive heart failure within 12-24 hours due to metabolic acidosis;

3. *renal failure* - oliguria, anuria within 24-72 hours since ingestion.

CNS symptoms: Facial diplegia, liquor protein increase, anisocoria, hyperreflexia, ataxia, dysphagia, cerebral oedema or epileptiform attacks within 30 minutes to 12 hours since ingestion.

Further symptoms: Liver damage, erythrocyturia.

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

Notes to doctor:

Treat Symptomatic, treat according to symptoms (decontamination, vital functions).

Ethanol is frequently given as an inhibitor in poisoning of ethylene glycol because alcohol competes for enzyme alcohol dehydrogenase (ADH), thereby blocking the metabolic activation of ethylene glycol. 4-Methylpyrazole (fomepizole), an ADH antidote, is even more effective for ethylene glycol poisoning.

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SECTION 5. Firefighting measures.



5.1. Extinguishing media:

Suitable extinguishing media:

Use the most efficient and the most suitable extinguishing agent for surroundings to extinguish the fire. All standard agents are acceptable: Water spray, water fog, chemical foam, alcohol resistant foam, dry fire powder, carbon dioxide (CO₂).

Unsuitable extinguishing media: Full water jet.

5.2. Special hazards arising from the substance or mixture:

Hazardous combustion products:

Carbon Monoxide (CO) and Carbon dioxide (CO₂) will be formed when burning as well as irritating fumes. Short-term exposures to smoke and gases may lead to irreversible lung injury without early signs of symptoms.

5.3. Advice for firefighters:

Special protective equipment for fire-fighters:

Do not enter fire area without proper protective equipment, including respiratory protection. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn (SCBA). During burning irritating and poisonous gases can be released, therefore use SCBA with a comprehensive facial mask, and protective fire-fighting clothing (including: fire helmet, overalls, pants, boots, gloves, eye and face protection.) must be worn.

Fire fighter's clothing conforming to European standard **EN469** provides a basic level of protection for chemical incidents and includes helmets, protective boots and gloves. Clothing not conforming to EN469 may not be suitable in any chemical incident. Use SCBA with a chemical protection suit only where personal (close) contact is likely to happen. Use SCBA with gas-tight suit when in close proximity to the substance or if vapors is likely to arise.

5.4. Additional information:

Stay down-wind during firefighting.

Promptly isolate the scene by removing all unauthorized persons from the area of the incident if there is a fire.

A pressure rise will occur if containers are exposed to heat, therefore evaporation of solution can result in rupture of container, it may burst. Cool containers with a cold water spray. If there is no risk, move the containers away from the heat source. Shut off sources of ignition. Stop spill/release if it can be done with minimal risk. Water mist may be useful in minimizing or dispersing vapors.

Do not release chemically contaminated water into drains, soil or surface water. Collect water used for extinguishing. Dispose of contaminated water and soil according to local regulations. Product is combustible, burns with difficulty.

SECTION 6. Accidental release measures.

6.1. Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Put on appropriate protective equipment (see Section 8.). Consult an emergency expert. Eliminate sources of ignition, do not smoke. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering the area. Do not touch or walk through spilled material. The recommendations are the same as for emergency help providing staff.

For emergency responders:

Wear appropriate protective equipment (see Section 8.) to prevent contact with the substance and inhalation of fumes or mist. Ensure to supply adequate ventilation and fresh air in closed rooms. Eliminate sources of ignition and heat. Stop leak if possible. Isolate and evacuate the danger zone, reduce the presence of persons, who are not involved in the rescue operation.

6.2. Environmental precautions:

Avoid contact of large quantities with water courses. Do not allow large quantities of product to enter drains, surface waters, ground water, and in case of large accidental spill into the water supply, inform local authorities immediately, to

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stop the water supply and use. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up:

For containment:

Ensure adequate ventilation is provided. Clogging or cover drains. In the event of a major leak, stop the flow of product and control spill travel by using: booms and pads, which can be found in spill kit, if it is safe to do. Scoop or pump off as much product as possible in to secure containers. Absorb remains in vermiculite, dry sand, silica gel or any non-combustible absorbent materials, place the used absorbent in closed, secure and suitable containers. After containing the substance, rinse the area with plenty of water.

In case of soil contamination, remove contaminated soil for remediation or disposal according to local regulations.

In case of product vapor leakage - apply water spray or mist to limit distribution of vapors.

For cleaning up:

Dispose of the material collected in secure containers according to regulations in section 13. After containing spill, clean up remains by diluting with water and mop up. In the case of small spills, wipe the surface with suitable absorbent material, clean surface with water afterwards.

6.4. Other information:

See Section 8 for personal protective equipment and Section 13 for waste disposal.

SECTION 7. Handling and storage.

7.1. Precautions for safe handling:

Protective measures:

Use only in dry, well ventilated areas. Handle opened container with care, close after use. Handle in accordance with good industrial hygiene and safety procedures. Avoid contact with the eyes. Avoid repeated or prolonged contact with skin when handling the product. Avoid inhalation of mist. Use appropriate protective equipment: protective clothing, gloves, goggles and respirator necessary (see Section 8.).

Measures to prevent fire:

Follow preventative fire protection regulations. Keep away from sources of sparks and ignition – do not smoke. Use only in well ventilated areas.

Measures to prevent aerosol and dust generation:

Avoid spraying in enclosed spaces. Avoid splashing of product when carrying or filling containers.

Measures to protect the environment:

When using, refilling or transferring a product at high temperatures, or if a large vapor concentration of product occurs, in enclosed areas, sufficient air ventilation systems should be provided. Check emission limit values, if the values are exceeded a purification of waste gases is necessary.

Advice on general occupational hygiene:

Provide adequate ventilation in areas where aerosol is formed. Avoid contact with eyes and skin. Provide easy access to water supply and eye wash facilities, show where to locate those. Wash your hands with mild soap and water after use, before breaks, at the end of the working day. Do not eat, drink or smoke when using the product and in areas where product is handled, stored and processed. "NO SMOKING" signs should be placed in the working area. Regular cleaning of equipment, work area and clothing is recommended. Use protective equipment while cleaning if necessary. Do not store with food, drink or animal food.

7.2. Conditions for safe storage, including any incompatibilities:

Technical measures and storage conditions:

Do not store close to heat sources, sparks or fire. Storage temperature – lowered temperature or ambient temperature from -35°C up to +40°C. Protect containers against physical damage. Containers and pipelines have to be labelled clearly and permanently. Good general ventilation should be sufficient to control worker exposure to vapor. If this product exceeds exposure limits, use process enclosures: local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits. Substance is hygroscopic, protect from moisture.

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Packaging materials:

Suitable packing material: Stainless steel, glass, polypropylene (PP), polytetrafluoroethylene (PTFE), polyfluoroethylene (PFE), polyvinylidene fluorides (PVDF); high density polyethylene (HDPE) and polyethylene (PE).

Non suitable packaging materials: Aluminium and Zinc-plated materials

Product can be packed in the package chosen by the buying customer, as long as it ensures its resistibility, safe transportation and storage of the product.

Requirements for storage rooms and vessels:

Store product protected from direct sunlight in a dry, cool and well-ventilated area. Floors must be leak-proof or covered with insulation material. It is recommended to use anti-spill container under the IBC containers or drums. Contact local authorities for further information on storage requirements.

Containers that have been opened must be carefully reinforced and kept upright to prevent leakage. Keep containers tightly closed when not in use. Keep containers protected from physical damage. Check regularly for leaks. Keep preferably in the original container. Do not remove the hazard labels of the containers (even if they are empty). Do not store in unlabeled containers.

Storage class: Storage class 10 (Combustible liquids as far as not in storage class 3).

Further information on storage conditions:

Product has a shelf life of 36 months, in unopened manufacturers packing, if stored in a cool and dry location and away from direct sunlight. Collocated storage with the following substances is prohibited: Pharmaceuticals, foods, animal feeds, Infectious and radioactive substances, explosive substances, gases, strongly oxidizing substances of storage class 5.1A. Only substances of the same storage class should be stored together.

7.3. Specific end use(s):

Heat transfer fluid, coolant for vehicles.

SECTION 8. Exposure controls/personal protection.
8.1. Control parameters:
Components with workplace control parameters:

Component	CAS No.	Value	Control parameter	Base
Ethylene glycol	107-21-1	OEL 8h	20 ppm; 52 mg/m ³	Occupational health and safety requirements for exposure to chemicals at work spaces
Ethylene glycol	107-21-1	Short term, 15 min.	40 ppm, 104 mg/m ³	
Sodium 2-ethylhexanoate	19766-89-3	OEL 8h	Not applicable.	
Sodium 2-ethylhexanoate	19766-89-3	Short term, 15 min.	Not applicable.	

DNEL values of exposure to human health:

The product is solution of ethylene glycol and additives. DNEL of the product is not determined. The physicochemical properties of the pure ethylene glycol DNEL, which could have the most negative effect, according to REACH dossier of ethylene glycol, is provided. As product contains sodium 2-ethylhexanoate, DNEL values and physicochemical properties of sodium 2-ethylhexanoate are provided additionally.

Mode of exposure	Type of exposure	DNEL value (workers)	DNEL value (public consumers)	The most negative physicochemical effect
Inhalation	Acute effect, systemic	(iii)	(iii)	Not applicable.
Inhalation	Acute effect, local	(iii)	(iii)	Not applicable.
Inhalation	Chronic effect, systemic	(Sodium 2-ethylhexanoate) 14 mg/m ³	(Sodium 2-ethylhexanoate) 3.5 mg/m ³	Developmental toxicity/teratogenicity.

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Inhalation	Chronic effect, local	(Ethylene glycol) 35 mg/m ³	(Ethylene glycol) 7 mg/m ³	Skin irritation/corrosion.
Dermal	Acute effect systemic	(iii)	(iii)	Not applicable.
Dermal	Acute effect, local	(iii)	(iii)	Not applicable.
Dermal	Chronic effect, systemic	(Ethylene glycol) 106 mg/kg bw/day; (Sodium 2-ethylhexanoate) 2 mg/kg bw/day	(Ethylene glycol) 53 mg/kg bw/day; (Sodium 2-ethylhexanoate) 1 mg/kg bw/day	Repeated dose toxicity; Developmental toxicity.
Dermal	Chronic effect, local	(iii)	(iii)	Not applicable.
Through eyes	Acute effect, local	(iii)	(iii)	Not applicable.
Oral	Acute effect, systemic	(ii)	(iii)	Not applicable.
Oral	Acute effect, local	(ii)	(iii)	Not applicable.
Oral	Chronic effect, systemic	(ii)	(Sodium 2-ethylhexanoate) 1 mg/kg bw/day	Developmental toxicity/ teratogenicity.
Oral	Chronic effect, local	(ii)	(iii)	Not applicable.
i) hazard identified but no DNEL available; ii) no exposure expected, iii) no hazard identified				

Predicted no effect concentration values:

PNEC of the product is not determined. PNEC of pure ethylene glycol, according to REACH dossier of ethylene glycol, is provided. PNEC values of sodium 2-ethylhexanoate are provided additionally.

Environmental protection target	PNEC value
Fresh water	Ethylene glycol: 10 mg/L; Periodic exposure – 10 mg/L. Sodium 2-ethylhexanoate: 360 µg/L; Periodic exposure – 493 µg/L.
Freshwater sediments	Ethylene glycol: 37mg/kg; Periodic exposure – PNEC value not available. Sodium 2-ethylhexanoate: 301 µg/kg; Periodic exposure – PNEC value not available.
Marine water	Ethylene glycol: 1 mg/L; Periodic exposure – 10 mg/L. Sodium 2-ethylhexanoate: 36 µg/kg; Periodic exposure – PNEC value not available.
Marine sediments	Ethylene glycol: 3.7 mg/kg; Periodic exposure – PNEC value not available. Sodium 2-ethylhexanoate: 30.1 µg/kg; Periodic exposure – PNEC value not available.
Food chain	(ii)
Microorganisms in sewage treatment	Ethylene glycol: 199.5 mg/L; Periodic exposure – PNEC value not available. Sodium 2-ethylhexanoate: 71.7 mg/L; Periodic exposure – PNEC value not available.
Soil (agricultural)	Ethylene glycol: 1.53 mg/kg; Periodic exposure – PNEC value not available. Sodium 2-ethylhexanoate: 57.9 µg/kg; Periodic exposure – PNEC value not available.
Air	(ii)
i) hazard identified but no PNEC available; ii) no exposure expected; iii) no hazard identified.	

8.2. Exposure controls:
Appropriate engineering controls:

Good general ventilation should be provided to control worker exposure to airborne contaminants of vapor or mists, especially in confined spaces. Adhere to good industrial hygiene rules when using or handling the product. Provide access to water, hand-wash facilities and showers, as well as easy access to eye wash. Do not use tools that can generate sparks and flames, avoid static electricity, use tools that are grounded. Do not expose the container to mechanical damage.

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Emissions from ventilation or work process equipment should be recommended to check 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.

Personal protection equipment:
Eye and face protection:

Use eye and face accessories that have been tested and approved in accordance with relevant standards such as: NIOSH (US) or EN 166 (EU). It is recommended to use polycarbonate safety glasses with side protection, goggles, tightly fitting goggles or face shield.

Body protection:

Choose the type of body protection according to the situation, concentration, quantity of the hazardous substance, and the specific concentration at the workplace. Workwear must comply with EN ISO 13688 standard and special work shoes must comply with EN ISO 20347:2012 standard. It is recommended to use impervious clothing and antistatic protective clothing or a suitable chemical protection suit.

Respiratory protection:

Where risk assessment shows, air-purifying respirators are appropriate, use a half-face or full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) or just A-P2 – brown white (LVS EN 141, LVS EN 136) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and accessories tested and approved in accordance with relevant national and international standards, NIOSH (USA) or CEN (EU).

Skin protection:

Gloves should be inspected before use. Use appropriate glove removal techniques (without touching the inside of the glove) to avoid contact with the product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practice. Wash and dry your hands. The gloves used must be chemically resistant in accordance with EN 420 or EN ISO 374-1 standards. Protective gloves must be made of one of the materials, with the relevant specifications listed in the table below:

Glove material	Minimum glove thickness (mm)	Penetration time (min)
Buthyl rubber	0.50	>480
Nitrile rubber/ Nitrile latex	0.40	>480
Fluorocarbon rubber	0.40	>480
Polychloroprene	0.50	>480
Natural rubber/Natural latex	Unsuitable	
Polyvinyl chloride	0.50	<30
Neoprene	0.50	>480

* Please note that the penetration time of the glove material in this section has been set at 22°C and using pure substance. When working at a higher temperature, the resistance of the glove material may be considerably lower, and in such cases, the permitted life of the glove must be shortened. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. We recommend that when you start using a new type or other manufacturer's gloves, make sure that they are chemically and mechanically resistant to working conditions. If you have any doubt about the suitability of the gloves, please contact the suppliers of gloves. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Thermal hazards: Combustible product, poorly flammable.

8.3. Environmental exposure controls:

Do not allow product to enter drains, surface waters or ground waters. See Section 6. for substance related measures to prevent exposure to environment.

SECTION 9. Physical and chemical properties.
9.1. Information on basic physical and chemical properties:

- a) **Appearance:** Transparent, red coloured liquid at 20°C and a pressure of 1013 hPa.
- b) **Odour:** Odourless.
- c) **Odour threshold:** Not measured.
- d) **pH:** 7.5 to 8.5 at 20°C temp. (ASTM D 1287; GHS-Sicherheitsdatenblatt, Merck).

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- e) **Melting/freezing point:** -40°C to -30°C.
- f) **Initial boiling point and boiling range:** Ethylene glycol (40% - 60%): 100°C to 115°C (Percy H. Walker, 22, 353, 1990.)
- g) **Flash point:** Pure ethylene glycol: 111°C (Cleveland Open Cup ASTM D92) .
- h) **Evaporation rate:** Pure ethylene glycol: <0.01; BuOAc = 1 at 90 % evaporation (Techniques of Chemistry 4th ed, 1985., p. 264).
- i) **Flammability:** Non flammable upon ignition.
- j) **Upper/lower flammability or explosive limits:**
Lower flammable limit (pure ethylene glycol): 3.2% by volume (Fire Protection Guide to Hazardous Materials 2010, p. 325-61).
- k) **Vapour pressure:** Pure ethylene glycol: 0.123 hPa at 25°C. (Daubert, T.E., R.P. Danner. Physical and Thermodynamic Properties of Pure Chemicals Data Compilation., 1989.)
- l) **Vapour density:** Pure ethylene glycol: 2,14 (Handbook of Environmental Data on Organic Chemicals. Volumes 1-2. 4th ed. p. 1106).
- m) **Relative density:** 1057 to 1072 kg/m³ (ASTM D 1122).
- n) **Solubility:** The product is miscible with water in all proportions.
- o) **Partition coefficient: n-octanol/water: (Log Kow (Log Pow)Ethylene glycol):** -1.36 at 25°C. (Hansch, C., Leo, A., D. Hoekman. Exploring QSAR - Hydrophobic, Electronic, and Steric Constants. 1995., p. 3.)
- p) **Auto-ignition temperature:** Pure ethylene glycol: 398°C at 101 325 Pa (Fire Protection Guide to Hazardous Materials. 14TH Edition, Quincy, MA 2010, p. 325-57).
- q) **Decomposition temperature:** Pure ethylene glycol: 200°C to 250°C (GESTIS Substance database).
- r) **Viscosity:** Ethylene glycol (40% - 60%): 8.0-10.0 mm²/s (dynamic) at 0°C (Haynes, W.M. (ed.). CRC Handbook of Chemistry and Physics. 95th Edition. FL 2014-2015, p. 6-232).
- s) **Explosive properties:** Based to column 2 of Annex VII to the REACH Regulation, does not apply, product is not explosive. There are no chemical functional groups associated with explosive properties.
- t) **Oxidising properties:** Based on column 2 of Annex VII to the REACH Regulation, does not apply, product is not oxidising. There are no chemical functional groups associated with oxidising properties.

9.2 Other safety information: None.**SECTION 10. Stability and reactivity.****10.1. Reactivity:**

Stable under regular conditions of transportation and use (see Section 7. "Handling and Storage").

10.2. Chemical stability:

Stable under storage, transportation and using conditions at lowered and normal ambient temperatures (-35°C to +40°C), (see Section 7. "Handling and Storage").

10.3. Possibility of hazardous reactions:

No hazardous reaction when handled and stored according to provisions. Risk of explosion in contact with perchloric acid. The substance should not be stored with substances with which hazardous chemical reactions are possible.

10.4. Conditions to avoid:

Avoid direct sunlight, heat, flames, sparks and incompatible materials. Do not damage product containers.

10.5. Incompatible materials:

Strong alkaline solutions, strong acids and oxidizing agents, such as: sodium hydroxide, sulfuric acid, chromium trioxide chromyl chloride, potassium dichromate, potassium permanganate, sodium hypochlorite, sodium peroxide, oleum, phosphorus pentasulfide, fuming nitric acid, silver chlorate

10.6. Hazardous decomposition products:Product forms carbon monoxide (CO) and carbon dioxide (CO₂) when burnt.

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SECTION 11. Toxicological information.

11.1. Information on toxicological effects:

Toxicity studies of the product are not available. As the product is solution of ethylene glycol and additives, information on toxicity, according to REACH dossier, is provided on ethylene glycol. Information on acute toxicity of sodium 2-ethylhexanoate is provided additionally.

Acute toxicity:

Effects on humans: No data available.

Effects on animals:

Routes of exposure	Exposure dose, concentration	Species	Method	Symptoms, effects	Remark
Acute oral toxicity	LD50: 7712 mg/kg bw (Ethylene glycol)	Rat (Sprague-Dawley)	OECD 401	16 dead rats of 20 in 8000 mL/kg bw dose group Clinical signs: depression, necrosis. Rats died of kidney damage	ECHA
Acute oral toxicity	LD50: 2043 mg/kg bw (Sodium 2-ethylhexanoate)	Rat (Fischer 344)	OECD 401	Clinical signs: weakness, prostration.	TOXNET
Acute inhalation toxicity	LC50: > 2.5 mg/L air (6h) (Ethylene glycol)	Rat (Sprague-Dawley)	OECD 403	No adverse effect observed.	ECHA
Acute inhalation toxicity	LC0: 0.11 mg/L (Sodium 2-ethylhexanoate)	Rat	OECD 403	No adverse effect observed.	ECHA
Acute dermal toxicity	LD50: > 3500 mg/kg bw (Ethylene glycol)	Mouse (CD-1)	OECD 402	No adverse effect observed.	ECHA
Acute dermal toxicity	LD50:> 2000 mg/kg bw (Sodium 2-ethylhexanoate)	Rats (Wistar)	OECD 402	No adverse effect observed.	ECHA

Other information: No data available.

Assessment / Classification:

After studying all the routes of exposure, ethylene glycol is classified as acute toxicity category 4 (H302: "Harmful if swallowed") according to Annex VI REACH Regulation.

Skin corrosion/irritation:

Effects on humans: No data available.

Effects on animals:

Exposure type	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Single injection of 0.5 ml of ethylene glycol.	24 h	8 days	Rabbit (Vienna white)	OECD 404	No irritation effects.	ECHA
Single application of 0.5 ml on skin of sodium 2-ethylhexanoate.	4 h	14 days	Rabbit (New Zealand white)	OECD 404	Not irritating.	TOXNET

Other information: No data available.

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Assessment / Classification:

Following the studied routes of exposure, product is not classified as a skin corrosive / irritant.

Serious eye damage/irritation:
Effects on humans:

No data available.

Effects on animals:

Exposure type	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Single injection of 0.5 ml of ethylene glycol.	24 h	8 days	Rabbit (Vienna white)	OECD 405	No eye irritation effects.	ECHA
Single injection of 100 µL of sodium 2-ethylhexanoate.	24 h	7 days	Rabbit (New Zealand white)	OECD 405	Not irritating.	ECHA

Other information:

No data available.

Assessment / Classification:

Product is not considered to be a eye irritant and is therefore not subjected for labelling and classification requirements according to regulatory requirements.

Respiratory or skin sensitisation:
Effects on humans:

No data available.

Effects on animals:

Exposure type	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Single injection of 100 µL of ethylene glycol under skin.	24 h	24 h	Guinea pig (Dunkin-Hartley)	OECD 406	Not sensitising.	ECHA
Single injection of 100 µL of sodium 2-ethylhexanoate.	24 h	6 days	Guinea pig (Dunkin-Hartley)	OECD 406	Not sensitising.	ECHA

Other information:

No adverse effect observed (not sensitising).

Assessment / Classification:

Product is not considered to be a skin sensitizer and is therefore not subjected for labelling and classification requirements according to regulatory requirements.

Germ cell mutagenicity:
Effects on humans:

No data available.

Effects on animals:

Exposure dose, concentration	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
0, 33, 100, 333, 1000, 2500 and 5000 µg/plate (ethylene glycol).	Incubation at 37°C for 48 to 72 hrs.	Expression time (cells in growth medium): 2 days at 37°C.	S.typhimurium ; E. coli strain	OECD 471	No cytotoxic effects were seen in the standard plate test.	ECHA
Oral feed: 40, 200, 1000 mg/kg bw/day (sodium 2-ethylhexanoate).	1 week	21 days	Rat (Fischer 344)	-	No genotoxicity effects.	ECHA
1; 10; 50; 100; 250; 500; 750; 1000; 1500 µg/mL (sodium 2-ethylhexanoate).	4 h, 24 h	16 days	Chinese hamster Ovary (CHO)	OECD 476	No mutagenic effects observed.	ECHA

Other information:

No data available.

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Assessment / Classification:

The available experimental test data are reliable and suitable for classification purposes under Regulation (EC) No. 1272/2008. The available test data revealed not genotoxic potential. The product is not considered to be classified for genetic toxicity under Regulation (EC) No 1272/2008.

Carcinogenicity:
Effects on humans: No data available.

Effects on animals:

Exposure dose, concentration	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Oral feed 0.04, 0.2 and 1.0 mg/kg bw/day. (ethylene glycol).	Daily.	24 months	Rats (Fischer 344)	OECD 451	Studies on rats and mice did not reveal any carcinogenic potential.	ECHA

Other information: The most noteworthy effects in the high level dose male rats was the production of urinary calculi in the kidneys, ureters and urinary bladders concomitant with high levels of calcium oxalate crystals in the urine.

Assessment / Classification:

The product is not considered as carcinogen under Regulation (EC) No. 1272/2008.

Reproductive toxicity:
Effects on humans: No data available.

Effects on animals:

Exposure dose, concentration	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Oral feed 40, 200 and 1000 mg/kg bw/day (ethylene glycol).	Daily.	24 days	Rats (Fischer 344)	OECD 416	No reproductive effects associated with the inclusion of as much as 1000 mg/kg bw/day.	ECHA
Inhalation of aerosol 0, 150, 1000, and 2500 mg/m ³ . (ethylene glycol).	6 h/day	21 days.	Rats	-	No teratogenicity at any aerosol concentration employed.	ECHA
Oral gavage 0, 100, 250 or 500 mg/kg bodyweight/day (sodium 2-ethylhexanoate).	Gestation day 6 through 15	12 weeks.	Rats (Fischer 344)	EPA OTS 798.4900	Hypoactivity, ataxia, audible respiration, ocular discharge and periocular encrustations. Reduced skeletal ossification.	ECHA

Other information:

Exposure of rats during organogenesis resulted in minimal maternal toxicity at 2500 mg/m³ and minimal fetotoxicity at 1000 and 2500 mg/m³. There was no maternal or embryofetal toxicity at 150 mg/m³ and no teratogenicity at any aerosol concentration employed. These results supports the hypotheses that Sodium 2-ethylhexanoate causes developmental toxicity and will only occur at high dose levels that cause maternal liver toxicity and disrupt zinc metabolism and distribution.

Assessment / Classification:

Based on these results, Sodium 2-ethylhexanoate will not cause effects on fertility but is likely to be a developmental toxicant. Product according to Regulation (EC) No. 1272/2008 is classified as toxic for reproduction system: Hazard Category 2, with the Hazard statement H361 (suspected of damaging the unborn child).

Summary of evaluation of the CMR properties:
Effects on humans: No data available.

Effects on animals: No data available.

Other information: No data available.

Assessment / Classification: Based on available data, the classification criteria are not met.

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STOT-single exposure:

Effects on humans: No data available.
Effects on animals: No data available.
Other information: No data available.
Assessment / Classification: Based on available data, the classification criteria are not met.

STOT-repeated exposure:

Effects on humans: No data available.
Effects on animals:

Exposure dose, concentration	Exposure time	Observation time	Species	Method	Symptoms, effects	Remark
Feeding orally: 50, 150, 300 and 400 mg/kg bw (Ethylene glycol)	Daily	12 months	Rats (Wistar)	OECD 452	Mortality observed, treatment-related.	ECHA
Application on shaved skin: 2 and 4 mg/kg bw (Ethylene glycol).	Daily	4 weeks	Dog (Beagle)	OECD 410	Urinalysis findings: effects observed, treatment-related.	ECHA
Feeding orally: 0, 61, 303 and 917 mg/kg/day (Sodium 2-ethylhexanoate).	Daily	91-93 days	Rats (Fischer 344)	EPA OTS 795.2600	Kidneys, testes and brain weight differences were observed, differences were a reflection of the lower mean body weight, rather target organ effects.	ECHA

Other information: LD50 (Ethylene glycol) dermal (dog): > 4000 mg/kg bw.

Assessment / Classification:

The available experimental test data are reliable and suitable for classification purposes under Regulation (EC) No. 1272/2008. Product is considered to be classified and labelled with STOT RE 2, H373 (May cause damage to organs) for repeated dose toxicity (oral route) under Regulation (EC) No 1272/2008.

Aspiration hazard:

Effects on humans: No data available.
Effects on animals: No data available.
Other information: No data available.
Assessment / Classification: Based on available data, the classification criteria are not met.

SECTION 12. Ecological information.

12.1 Toxicity:

Studies of ecological impact of the product are not available. As the product is solution of ethylene glycol and additives, information about ecological impact, according to REACH dossier, is provided of ethylene glycol. Information on the ecological impact of sodium 2-ethylhexanoate is provided additionally.

Acute (short-term) toxicity:

Target parameter	Value	Species	Method	Exposure time	Remark
LC50	72 860 mg/L (Ethylene glycol)	Freshwater fish	OECD 203	96 h	ECHA
LC50	180 mg/L (Sodium 2-ethylhexanoate).	Freshwater fish	OECD 203	96 h	ECHA
LC50	13 900 to 57 600 mg/L (Ethylene glycol)	Aquatic invertebrates - Daphnia magna	OECD 202	48 h	ECHA
EC50/LC50	910 mg/L (Sodium 2-ethylhexanoate)	Aquatic invertebrates - Daphnia magna	OECD 202	48 h	ECHA

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EC50	49.3 mg/L (Sodium 2-ethylhexanoate)	Freshwater algae - Desmodesmus subspicatus	-	72 h	ECHA
EC50	112.1 mg/L (Sodium 2-ethylhexanoate)	Microorganisms -activated sludge	-	17 h	ECHA
LC50	72 860 mg/L (Ethylene glycol)	Marine fish	OECD 203	96 h	ECHA
EC10	100 mg/L (Ethylene glycol)	Freshwater algae	OECD 201	72 h	ECHA

Chronic (long-term) toxicity:

Target parameter	Value	Species	Method	Exposure time	Remark
LC50	63 mg/L (Sodium 2-ethylhexanoate)	Water invertebrates - Daphnia magna	OECD 211	24 days	ECHA
EC10/LC10	15 380 mg/L (Ethylene glycol)	Freshwater fish	OECD 204	14 days	ECHA
EC10/LC10	8 590 mg/L (Ethylene glycol)	Water invertebrates- Daphnia magna	OECD 211	23 days	ECHA

12.2. Persistence and degradability:
Biodegradation:

Vapor-phase ethylene glycol and sodium 2-ethylhexanoate will be slowly degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 2 days. Ethylene glycol and sodium 2-ethylhexanoate is not expected to undergo hydrolysis in the environment due to the lack of functional groups that hydrolyze under environmental conditions.

Aerobic:

With ethylene glycol at 100 mg/L, 83-96% of the theoretical BOD was reached within 14 days using activated sludge. In the BOD20 screening test 51, 80, 85, and 97% of the ethylene glycol was biooxidized in 5, 10, 15, and 20 days, respectively. BOD - Biochemical Oxygen Demand is the amount of dissolved oxygen needed by aerobic biological organisms to break down organic material present in a given water sample.

Anaerobic:

Under anaerobic conditions, ethylene glycol at 30 mg carbon/L was completely biodegraded within 7 days.

Other information:

According to BOD values, ethylene glycol is classified as readily biodegradable and will not be bioaccumulative in water, freshwater sediments and in soil. After 10 days >90 % degradation of ethylene glycol was determined. Sodium 2-ethylhexanoate is readily biodegradable (according to OECD criteria). For the results of studies of biodegradation of ethylene glycol and sodium 2-ethylhexanoate, see TOXNET, ECHA and PUBCHEM.

12.3. Bioaccumulative potential:
Partition coefficient n-octanol /water (log Pow):

(Ethylene glycol) LogPow = -1.36 (25°C). Considered to be low (based on high solubility in water). The main part of product – ethylene glycol – does not have any bio accumulative properties, does not form any toxic compounds with other substances present in the air. (Sodium 2-ethylhexanoate) LogPow = 1.3 (25°C), therefore no test on bioaccumulation in soil organisms is performed.

Bioconcentration factor (BCF):

Species	Exposure time	Method	Result value	Remark
Fish - Leuciscus idus melanotus (Ethylene glycol)	72 h	OECD 305	BCF = 10	TOXNET

Bioconcentration factor and low partition coefficient suggests the potential for bioconcentration in aquatic organisms is low.

12.4. Mobility in soil:
Known or predetermined prevalence in environmental compartments:

If product is released to environment, the main ingredients will end up in:

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Environment	Ethylene glycol	Sodium 2-ethylhexanoate
Air	0.03 %	0.93 %
Water	99 - 100 %	91.7 %
Soil	0 %	3.64 %
Sediment	0 %	3.68 %
Suspended sediment	0 %	0.02 %
Biota	0 %	0 %
Aerosol	0 %	0 %

Over time, the product will most likely distribute into water.

Surface tension: Not measured.

Adsorption / Desorption:

Spreading environment	Mode of transport	Method	Result value (pure substance)	Remark
Soil – water (Ethylene glycol)	Adsorbption	OECD 106	<i>Koc</i> : 0.20	TOXNET
Soil – water (Sodium 2-ethylhexanoate)	Adsorbption	OECD 106	<i>Koc</i> : 140.87	TOXNET

Based upon a calculated log *Koc* adsorption to solid phase in soil is not expected. From the water surface, ethylene glycol and sodium 2-ethylhexanoate will not evaporate into the atmosphere. Ethylene glycol will be distributed into the water. This *Koc* value suggests that ethylene glycol is expected to have very high mobility in soil.

Henry's law constant is 0.133 Pa*m³/mol at 25°C (Ethylene glycol).

Henry's law constant is 0.294 Pa*m³/mol at 25°C (Sodium 2-ethylhexanoate).

12.5. Results of PBT and vPvB assessment:

In accordance with Regulation (EC) No 1907/2006, Annex XIII, product does not meet the PBT and vPvB criteria and is not a PBT or vPvB substance.

12.6. Other adverse effects: None.

12.7. Additional information: No data available.

SECTION 13. Disposal considerations.

13.1 Waste treatment methods:

Product / Packaging disposal:

In accordance to annex III of "Commission notice on technical guidance on the classification of waste" (2018/C 124/01), the product, without any impurities, is classified as hazardous waste by **HP5; HP6; HP10**.

In accordance to Commission decision (2014/955/EU) and Republic of Latvia Cabinet of Ministers Regulation No. 302, the product, without any impurities, is classified as hazardous waste (see EWC codes).

Dispose of collected material as unused material. Burn in a chemical incinerator equipped with an afterburner and scrubber. Contact nearest waste disposal facility for further instructions.

Collection of small and medium amounts of products: Place in a collection container for halogen-free organic solvents and halogen-free organic solutions. Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location away from direct exposure of sun.

Empty the product cans or drums, free them from as much of the product as possible. The packing needs to be cleaned. In accordance with Regulation (EC) No. 1357/2014, empty packaging, clean from product, is not classified as hazardous waste. Re-use or dispose clean packing material.

If packing contains product or is contaminated, or if packing cannot be cleaned, dispose of it as unused product. Dispose of product and its packaging safely in accordance with regional and national environmental regulations.

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Waste codes / waste designations according to EWC:

According to the European Waste Catalog (EWC) and European List of Waste (LoW), the applicable codes for product are:

- 07 01 04 - Other organic solvents, washing liquids and mother liquors (AH – absolute hazard);
- 07 07 04 - Other organic solvents, washing liquids and mother liquors (AH – absolute hazard);
- 14 06 03 - Other solvents and solvent mixtures (AH – absolute hazard);
- 15 01 02 - Plastic packaging (MNH – mirror non hazardous);
- 16 01 14 - Antifreeze fluids containing dangerous substances (MH – mirror hazardous);

Sewage disposal-relevant information:

Waste should not be disposed of by release into sewers.

Other disposal recommendations:

It is the responsibility of the waste treatment company to make a final decision on the relevant waste management, disposal or recycling method in accordance with regional, national or European legislation and possible adaptation to local conditions.

SECTION 14. Transport information.

ADR	IMDG	ICAO-TI/IATA-DGR	ADN	RID
14.1. UN Number:				
Not applicable.				
14.2. UN proper shipping name:				
Not applicable.				
Transport document description:				
Not applicable.				
14.3. Transport hazard class(es):				
Not applicable.				
14.4. Packing group:				
Not applicable.				
14.5. Environmental hazards:				
Not classified as environmentally hazardous.				

14.6. Special precautions for users:

Road transport (ADR):	Not applicable.
Transport by sea (IMDG):	Not applicable.
Air transport (IATA):	Not applicable.
Inland waterway transport (ADN):	Not applicable.
Rail transport (RID):	Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15. Regulatory information.

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

EU regulations:

- Regulation (EC) **No. 1907/2006** of the European Parliament and Council of 18. December 2006 on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH);
- Commission Regulation (EU) **No. 2015/830** of 28 May 2015 amending Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH);
- Commission regulation (EU) **No. 552/2009** of 22 June 2009 amending Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII;
- Regulation (EC) No. **1272/2008** - classification, labelling and packaging of substances and mixtures (CLP);

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- Commission regulation (EU) **No. 1357/2014** of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives;

- Regulation **649/2012/EU** concerning the export and import of hazardous chemicals (PIC);

- Regulation **850/2004/EC** on persistent organic pollutants (POP);

- European Agreement concerning the International Carriage of Dangerous Goods by Road (**ADR**);

- European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (**ADN**).

- Commission notice on technical guidance on the classification of waste **2018/C 124/01**;

- Directive **2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives;

- Regulation (EC) **No. 166/2006** of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC;

- **2014/955/EU**: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council Text with EEA relevance.

International regulations:

- Regulations concerning the International Carriage of Dangerous Goods by Rail (**RID**);
- International Maritime Dangerous Goods Code (**IMDG**);
- International Convention for the Prevention of Pollution from Ships (**MARPOL 73/78**);
- International Aviation Transport Association regulations (**IATA**);
- International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (**IBC Code**).

National regulations (Latvia):

- Chemical Substances Law;
- Republic of Latvia Cabinet of Ministers Regulation **No. 795**: "Procedures for Registration of Chemical Substances and Mixtures and Their Database";
- Republic of Latvia Cabinet of Ministers Regulation **No. 325**: "Labour Protection Requirements when Coming in Contact with Chemical Substances at Workplaces";
- Republic of Latvia Cabinet of Ministers Regulation **No. 302**: "Provisions regarding the waste classification and the characteristics rendering the hazardous waste";
- Republic of Latvia Cabinet of Ministers Regulation **No. 107**: "Procedure for Classification, Labeling and Packaging of Chemicals and Chemical Products";
- Labour Protection Law;
- **LVS EN 149 + A1:2009** - Standard for disposable dust respirators with or without valve according to which they are labeled with FFP1, FFP2 or FFP3 depending on protection class;
- **LVS EN 143:2002 + AC/AC:2005** - Standard for dust filters P1, P2, P3 for use with half masks and full face masks;
- **LVS EN 141:2002** - Standard for gas and combined filters;
- **LVS EN 14387:2004+A1:2008** - Respiratory protective devices. Gas filter(s) and combined filter(s). Requirements, testing, marking;
- **EN 420**: The standard of glove safety;
- **LVS EN 388** - "Protective gloves against mechanical effects";
- **EN469** - Protective clothing for firefighters - Requirements for firefighting protective clothing;
- **LVS EN ISO 374-1** - "Protective gloves against dangerous chemicals and microorganisms";
- **LVS EN 166:2002** - "Individual eye protection. Specifications";
- **LVS EN ISO 13688** - "Protective clothing - General requirements";
- **LVS EN ISO 20347:2012** - "Personal protective equipment - Occupational footwear"

15.2. Chemical safety assessment:

No chemical Safety Assessment has been carried out for this mixture.

SECTION 16. Other information.

16.1. Indication of changes:

Release Date: **24.09.2015.**

Date of revision: **04.09.2019.**

Version: **2.0.**

Name of the product: **Auto Coolant – Antifreeze Long Life G12, -36°C ready to use.**Internal code of the product: **G12/036**Page **18** of **18****16.2. List of abbreviations and acronyms used throughout the Safety Data Sheet:****CPR** – Artificial respiration or cardiopulmonary resuscitation;**SCBA** – Self-contained breathing apparatus;**OEL** – Occupational exposure limit;**DNEL** – Derived no effect level;**PNEC** – Predicted no effect concentration;**STOT** – Specific target organ toxicity;**CMR** – Carcinogenic, mutagenic and reprotoxic chemicals;**LD50** – Median lethal dose;**LC50** – Median lethal concentration;**EC50** – Half maximal effective concentration;**LC0** - Maximum tolerable concentration;**LC10** – Lethal dose at which 10% of the test population are killed;**EC10** – Effective concentration at which it is expected 10% of the test organisms would show an adverse effect;**PBT/ vPvB** – Persistent, bioaccumulative and toxic and very persistent and very bioaccumulative;**OECD** – Organisation for Economic Co-operation and Development;**ppm** – parts per million;**bw** – body weight;**BCF** - Bioconcentration factor;**16.3. Key literature references and sources for data:**

Toxnet, Pubchem, ECHA, Gestis substance database.

The information provided in this safety data sheet is based on the data provided by the manufacturer and on our present-day knowledge of the product, which is considered to be correct. However, no warranty, express or implied, is given. The information is intended to give you advice and guidance only on safe use, recycling, storage, transportation and disposal. The information cannot be transferred to other products. In case of mixing the product with other products or in case of processing, the information on this safety data sheet is not necessarily valid for the new made-up product. Regulatory requirements are subject to change and may differ between various locations. The above information is considered to be correct, but does not mean that it is complete. It is the buyer's / user's responsibility to ensure that his activities comply with all local laws.

This version replaces all previous documents.