

SECTION 1: Identification of the substance/mixture and of the company/undertaking1.1. Product identifier**Borygo Start**1.2. Relevant identified uses of the substance or mixture and uses advised against

General application: The car radiator fluid Borygo Start can be applied to the internal combustion engine cooling system.

1.3. Details of the supplier of the safety data sheet

Boryszew S.A.

Oddział Boryszew ERG w Sochaczewie

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adres www: boryszewerg.com.pl

email: certyfikacja@boryszewerg.com.pl

1.4. Emergency telephone number

Tel. 112 (general emergency number)

SECTION 2: Hazards identification2.1 Classification of the substance or mixture

Mixture name	Symbols of danger	According to Regulation No. 1272/2008:
Borygo Start		Acute Tox.4, H 302 STOT RE 2, H 373

Human life and health hazards:

Harmful if swallowed.

May cause damage to organs <kidney> through prolonged or repeated exposure <oral> .

Environmental hazards:

The product is not classified as hazardous for the environment.

Other hazards:

none

2.2. Labelling

According to Regulation No. 1272/2008:



Pictograms:

Contain Ethylene glycol

Signal word: Warning

H-phrases: H 302 - Harmful if swallowed.

H 373 - May cause damage to organs <kidney> through prolonged or repeated exposure<oral> .

P-phrases: P 201 - Obtain special instructions before use.

P 270 - Do not eat, drink or smoke when using this product.

P 301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P 314 - Get medical advice/attention if you feel unwell.

P 404 - Store in a closed container.

P 501 - Dispose of contents/container to selective waste collection

2.3. Other hazards

Prolonged exposure or high concentrations of vapor or mist may cause slight respiratory tract irritation, headaches, dizziness, nausea, drowsiness, disturbances of the central nervous system, involuntary eye movements, coma.

Contact with skin causes irritation weak.

Eye in the conditions of prolonged exposure causes moderate eye irritation.

The product is flammable, a fire hazard. Can act explosively with strong oxidizing agents.

No information on PBT or vPvB criteria compliance as per attachment XIII of REACH regulation. Relevant research not conducted.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Substance name	Concentration range [%]	CAS number	EC number	Regulation (EC) No 1272/2008 (CLP)**
Ethylene glycol *	33÷50	107-21-1	203-473-3	Acute Tox. 4 ; H 302 STOT RE. 2 ; H 373
Disodium tetraborate **	0,5-0,8	12179-04-3	215-540-4	Repr. 1B; H360 FD Eye Irrit 2; H319

* registration number for Ethylene glycol: 01-2119456816-28-XXXX

** registration number for Disodium tetraborate: 01-2119490790-32-XXXX

*** see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Ingestion: If swallowed in large quantities, give water. Consult a doctor immediately.

Inhalation: the occurrence of breathing difficulties, give oxygen. Remove victim to fresh air.

Skin contact: wash with soap and water.

Eyes contact: keeping victim's eyes opened flush them with water.

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

In the first period of poisoning after swallowing symptoms similar to alcohol intoxication: the state of agitation, slurred speech, impaired balance and coordination, headaches, dizziness, drowsiness, etc. Then there are nausea and vomiting, diarrhea. You may experience breathing problems. In case of severe poisoning circulatory disorders, heart rate, blood pressure, coma, loss of consciousness with convulsions, collapse. Possible death due to respiratory arrest.

Lethal dose for human is 100 ml.

Contact with skin produces mild skin irritation. Eye contact causes moderate eye irritation with prolonged contact.

Chronic exposure is to enhance the existing skin ailments, eye, respiratory tract. And may cause kidney and liver damage, possible brain damage.

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

If unconscious do not give anything by mouth and do not induce vomiting. Assisting medical staff to show the MSDS label or packaging.

Treatment of ethylene glycol poisoning, according to the condition of the patient, should include:

Gastric lavage within 2 hours of intoxication, fighting cardio-respiratory disorders, ethylene alcohol administration (intravenous drip infusion of 5-15% ethylene alcohol solution in 5% glucose).

In case of severe intoxication hemodialysis use, diuresis.

Borygo Start

This Material Safety Data Sheet according to 1907/2006/EC (REACH), 1272/2008 (CLP) & 453/2010

(Data from Section 4 are 100% ethylene glycol)

SECTION 5: Firefighting measures5.1. Extinguishing media

Suitable extinguishing media: carbon dioxide, dry chemical, alcohol resistant foam, water.

Unsuitable extinguishing media: are not known.

5.2. Special hazards arising from the substance or mixture

Flammable. In an environment of fire carbon oxides. Avoid inhalation of combustion products, which pose a health risk.

5.3. Advice for firefighters

Inform about the failure. Evacuate the danger area all persons not involved in fire fighting, if necessary, call rescue. People involved in fire fighting should be trained, equipped with protective clothing and breathing apparatus with independent air supply.

SECTION 6: Accidental release measures6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with the released liquid. Do not breathe vapors. Ensure effective ventilation.

6.2. Environmental precautions

Do not let the product into sewage and/or drainage systems, surface waters and ground waters.

6.3. Methods and material for containment and cleaning up

Stop the leak, isolate the area contaminated. Pour over with liquid-absorbent material, such as sand, soil, vermiculite, silicate earth or sawdust. Pick up mechanically to properly labeled, sealed container and directed to recycling. Residues with plenty of water.

6.4. Reference to other sections

Individual means of protection – see Section 8, improper extinguishing measures – see Section 5.

Disposal consideration – see Section 13.

SECTION 7: Handling and storage7.1. Precautions for safe handling

Follow the general rules of occupational health and safety of chemicals and good manufacturing practice, strictly observe the procedures developed and any recommendations the manufacturer. Use in well ventilated area. Wear protective clothing, cotton, rubber front apron, goggles, gloves. Do not eat, drink or smoke. Keep away from fire and ignition sources. Do not allow to enter drains fluid released.

7.2. Conditions for safe storage, including any incompatibilities

Store only in tightly closed, properly labeled containers in a cool, ventilated area. Store in containers or containers made of HDPE. Protect product from moisture from the air and sunlight. Store at temperatures <40°C. Packaging should be positioned vertically.

7.3. Specific end use(s)

No data on specific uses.

SECTION 8: Exposure controls/personal protection8.1. Control parameters

Occupational Exposure Limits (PL):

Specification	NDS	NDSP	NDSch	DSB
Ethylene glycol CAS: 107-21-1	15 mg/m ³	-	30 mg/m ³	-

Borygo Start

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Indicators of occupational exposure (UE):

Specification	The limits			
	8 hours		Short-term	
	mg/m ³	ppm	mg/m ³	ppm
Ethylene glycol CAS: 107-21-1	52	20	104	40

DNEL – Ethylene glycol

- workers, long-term exposure, Dermal: 106 mg/kg bw/day
- workers, long-term exposure, Inhalation: 35 mg/m³
- general population, long-term exposure, Dermal: 53 mg/kg bw/day
- general population, long-term exposure, Inhalation: 7 mg/m³

PNEC – Ethylene glycol

- aqua (freshwater): 10 mg/l
- aqua (marine water): 1 mg/l
- aqua (intermittent releases): 10 mg/l
- sediment (freshwater): 20,9 mg/kg
- STP: 199 mg/l

8.2. Exposure controls

Avoid contact with eyes or skin. Observe the general precautions required when using chemicals.

Skin protection: Appropriate protective clothing, rubber front apron and boots.

Eye protection: In conditions of exposure to vapors or aerosols to wear protective goggles.

Respiratory protection: Respiratory protective equipment in case of insufficient exhaust ventilation or prolonged exposure. Recommended efficient ventilation (general, local) in the workplace.

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

Appearance	Clear pink liquid homogeneous, opaque, with no deposits
Odor	slight or no odor
Odor threshold	not determined
pH	7,5 ÷ 11,0 (in 20°C)
Freezing temperature	not higher than -35°C
Melting temperature	not determined
Boiling temperature range	107,5 °C
Ignition temperature	111°C (for 100% ethylene glycol)
Flash point	not determined
Self-ignition temperature	410°C (for 100% ethylene glycol)
Evaporation rate	not determined
Flammability	not applicable - the substance is a liquid (for 100% ethylene glycol)
Explosive limits	3,2 % - 15,3 % (for 100% ethylene glycol)
Vapour pressure	0,123 hPa in temp 25°C (for 100% ethylene glycol)
Vapour density versus air	2,14 (for 100% ethylene glycol)
Vapour (minimum in 20°C)	1,070 g/cm ³
Solubility	fully soluble in water other solvents - alcohol, acetone, ether does not dissolve in - aliphatic hydrocarbons (hexane, petroleum ether) and carbon tetrachloride (for 100% ethylene glycol)
Partition coefficient: n-octanol/water	-1,36 (for 100% ethylene glycol)

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Decomposition temperature	not determined
Viscosity	16,1 mPa (in 20°C) (for 100% ethylene glycol)
Explosive properties	not exhibit (for 100% ethylene glycol)
Oxidizing properties	not exhibit (for 100% ethylene glycol)

9.2. Other information

No data.

SECTION 10: Stability and reactivity**10.1. Reactivity**

Not known at the recommended conditions of use.

10.2. Chemical stability

Product stable in recommended use and storage conditions.

10.3. Possibility of hazardous reactions

The product ignites in contact with chromium trioxide, potassium permanganate, sodium peroxide at room temperature; with ammonium dichromate, silver chlorate, uranyl nitrate at 100°C.

10.4. Conditions to avoid

Contact with sources of heat, ignition sources. Moisture from the atmosphere.

10.5. Incompatible materials

Strong acids (chlorosulfonowy acid, sulfuric acid, oleum, perchloric acid), strong bases (sodium hydroxide), dimethyl terephthalate, phosphorus pentasulfide, strong oxidants.

10.6. Hazardous decomposition products

Not known in recommended use conditions

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Wynik ATE mix = 1012

Acute toxicity

Oral (rat) LD₅₀ – 7 112 mg/kg
Inhalation (rat, 6h) LC₅₀ > 2,5 mg/l
Dermal (mouse) LD₅₀ > 3 500 mg/kg

Repeated dose toxicity

Oral (rat) NOAEL = 150 mg/kg bw/day
Dermal (mouse) NOAEL ca. 3549 mg/kg bw/day

Skin irritation: not irritating.

Eye damage / eye irritation: not irritating.

Sensitisation by inhalation or skin: not sensitizing.

Mutagenic effect on germ cells: does not show genotoxicity in vitro or in vivo.

Carcinogenesis: long-term toxicity studies conducted in rodents have shown that this substance is not carcinogenic.

Reproductive toxicity: no reproductive toxicity.

Toxicity to organs or systems - repeated exposure:

It is suspected that during repeated oral exposure to the preparation there is the possibility of oxalate nephrosis. The target organ may be the kidney.

Delayed and immediate and chronic effects from short-and long-term exposure.

The effects of acute exposure:

Inhalation: due to the low vapor pressure product has low inhalation toxicity. Prolonged exposure or high concentrations of vapor or mist may cause slight respiratory tract irritation, headaches, dizziness, nausea, vomiting, drowsiness, disturbances of the central nervous system, involuntary eye movements, coma.

Ingestion: Causes irritation to the gastrointestinal tract, central nervous system, kidneys and liver damage.

In the first period of swallowing symptoms similar to alcohol intoxication: the state of agitation, slurred speech, impaired balance and coordination, headaches, dizziness, drowsiness, etc. Then there are nausea and vomiting, diarrhea. You may experience breathing problems. In case of severe poisoning circulatory disorders, heart rate, blood pressure, coma, loss of consciousness with convulsions, collapse. Possible death due to respiratory arrest.

Lethal dose for humans is about 100 ml

Contact with skin produces mild skin irritation.

Eye Contact: Causes moderate eye irritation with prolonged contact.

The effects of chronic exposure:

Can strengthen existing skin ailments, eye, respiratory tract. Can cause disturbances and damage to the kidneys and liver. Possible damage to the central nervous system.

(data from section 11 on 100% ethylene glycol)

SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity to the aquatic environment:

- fish (*Pimephales promelas*, 96h) LC_{50} – 72 860 mg/l
- invertebrates (*Daphnia magna*, 48h) EC_{50} > 100 mg/l
- algae (*Pseudokirchneriella subcapita*, 96h) EC_{50} 6 500 – 13 000 mg/l

Chronic toxicity to the aquatic environment:

- fish (*Pimephales promelas*, 7d) NOEC – 15 380 mg/l
- invertebrates (*Daphnia magna*, 7d) NOEC – 8 590 mg/l

Toxicity to microorganisms:

- bacteria (*Pseudomonas putida*, 16h) TTC (EC_5): 10 000 mg/l
- activated sludge, domestic (total exposure duration 30 min) EC_{20} : 1 995 mg/l

Data on acute and chronic toxicity to aquatic organisms indicate that the product does not pose a threat to the aquatic environment and activities of biological wastewater treatment plant.

Toxicity to organisms in the overland environment

Experimental data on the toxicity of macro and micro-organisms in the overland environment are not available. New studies were not performed. However, due to its high susceptibility to biodegradation of the substance of the direct exposure of soil organisms, including arthropods, the substance is unlikely.

This product should not pose a risk to soil organisms.

12.2. Persistence and degradability

No data on hydrolysis. Ethylene glycol ethers as well as other glycols and is considered to be stable in the processes of hydrolysis and readily biodegradable.

Ethylene glycol in the air, the evaporation is distributed (subject to indirect photodegradation processes) interacting with free radicals (DT_{50} is about 46.3 hrs.)

12.3. Bioaccumulative potential

No potential for bioaccumulation studies available in the aquatic environment and soil. Based on the estimated value of the adsorption coefficient ($\log K_{oc}=0$) and the octanol/water ($\log K_{oc}=-1.36$) accumulation in organisms is not expected.

12.4. Mobility in soil

Based on the available physicochemical data of the product estimated value of the adsorption coefficient $\log K_{oc}$ is 0. It is considered that the substance is a solid-phase adsorption in the soil.

12.5. Results of PBT and vPvB assessment

Not applicable

12.6. Other adverse effects

Information about other harmful effects on the environment, the ability to endocrine disruption or impact on global warming are not available.

(data from section 12 relate to 100% ethylene glycol)

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Do not empty into drains. Do not allow contamination of surface water and groundwater. Collect waste material to land-use (recycling) or incinerated in appropriate plants.

Waste packages give businesses involved in recycling of packaging waste.

The classification is defined according to the place of manufacture on the basis of the criteria regulations in force. If the product has been used in any further operations / processes, the end user should define the resulting waste and assign the appropriate code.

SECTION 14: Transport information

Product not subject to hazardous material transportation regulations in road and rail transport.

14.1. UN number

None

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance).

Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (Text with EEA relevance).

Commission Regulation (EU) No 453/2010 of 20 May 2010 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 amended.

15.2. Chemical safety assessment

No chemical safety assessments for substances in the mixture and the mixture.

SECTION 16: Other informationAbbreviations and acronyms, list of relevant H phrases, hazard statements used in the safety data sheet:

- Repr. 1B - Toxic to reproduction, category 1B
 Eye Irrit 2 - Irritating to eyes, category 2
 Repr.Cat 2 - Toxic for reproduction, category 2
 Acute Tox.4 - Acute toxicity, category 4
 STOT Rep. Exp.2 - May cause damage to organs through prolonged or repeated exposure, category 2
 H302 - Harmful if swallowed.
 H319 - Causes serious eye irritation.
 H360FD - May damage fertility or the unborn child.
 H373 - May cause damage to organs <kidney> through prolonged or repeated exposure<oral> .
 P 201 - Obtain special instructions before use.
 P 270 - Do not eat, drink or smoke when using this product.
 P 301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P 314 - Get medical advice/attention if you feel unwell.
 P 404 - Store in a closed container.
 P 501 - Dispose of contents/container to selective waste collection

Classification was made by calculation method.

Revision:

- 05.03.2012 sheet format change according to Commission Regulation (EU) 453/2010 of 20 May 2010 as well as for updated regulations,
- 16.07.2012r general update,
- 30.10.2012 point 15.1.
- 21.01.2016 – 1,3, 2.1, 2.2, 3.2, 9, 11, 15, 16 – update according to Regulation (EC) No 1272/2008

The information in this MSDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. The information in this MSDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.