

## Section 1. Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Borygo Plane GA

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

General use: Aircraft de-icing liquid.

### 1.3. Details of the supplier of the safety data sheet

Boryszew S.A.

ERG Boryszew Branch in Sochaczew

ul. 15 Sierpnia 106; 96-500 Sochaczew

Tel. 46 863 02 01

Fax. 46 863 00 96

website: [boryszewerg.com.pl](http://boryszewerg.com.pl)

email: [certyfikacja@boryszewerg.com.pl](mailto:certyfikacja@boryszewerg.com.pl)

### 1.4 Emergency telephone number

112 (general emergency telephone number)

## Section 2. Hazards identification

### 2.1. Classification of the substance or mixture

Name of the mixture	Hazard symbols according to Regulation (EC) 1272/2008
Borygo Plane GA	Acute Tox.4, H 302 STOT RE 2, H 373

#### Hazards for human health or life:

Harmful product. Harmful if swallowed.

#### Environmental hazards:

The product is not classified as hazardous for the environment.

#### Other hazards:

None

### 2.2. Label elements

According to the Regulation (EC) 1272/2008:



Pictograms:

Contains: monoethylene glycol

H Phrases: H 302 - Harmful if swallowed.

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

P Phrases : P 201 – Obtain special instructions before use.

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

P 301+ P 312 - 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**

No information on meeting the PBT or vPvB criteria according to Annex XIII of the REACH Regulation. Relevant studies were not conducted.

Prolonged exposure or high concentrations of vapours or mists may cause minor respiratory irritation and headaches or dizziness, nausea, drowsiness, central nervous system disorders, involuntary eye movement, coma.

Contact with skin: skin burns and irritation.

Eye contamination in conditions of prolonged contact causes moderate eye irritation.

Flammable product, causes the risk of fire. May be explosive with strong oxidizing agents.

**Section 3. Composition/information on ingredients****3.1. Substances**

Not applicable

**3.2. Mixtures**

Substance name	Concentration range [%]	CAS Number:	EC Number:	Hazard symbols
				Regulation (EC) 1272/2008***
Ethylene glycol*	85	107-21-1	203-473-3	Acute Tox. 4; H302 STOT Rep. Exp.2; H373
Propan-2-ol**	5	67-63-0	200-661-7	Flam.Liq.2; H225 Eye irrit.2; H 319 STOT SE 3; H336

\* Reg.no: 01-2119456816-28-XXXX

\*\*Reg.no.: 01-2119457558-25-xxxx

\*\* see section 16

**Section 4. First-aid measures****4.1. Description of first aid measures**

Swallowing: If swallowed, induce vomiting, give approximately 100 ml of vodka (40%) or of any other similar alcoholic drink. Call for medical help immediately.

Inhalation: In case of breathing difficulties give oxygen. Move the affected person to fresh air.

Skin: Wash immediately with plenty of soapy water.

Eye: Wash eyes with plenty of running water with eyelids wide open.

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

At the first stage of intoxication after ingestion symptoms similar to alcohol intoxication occur: agitation, slurred speech, impaired balance and coordination of movements, headaches and dizziness, drowsiness, etc., followed by nausea and vomiting, diarrhea. Breathing disorders may occur. In case of severe intoxication, blood circulation disorders, increased heart beat, drop in blood pressure, loss of consciousness, coma with seizures, collapse. Possible death due to pulmonary arrest.

*Lethal dose for humans is 100 ml.*

Contact with skin: skin burns and irritation. Contamination of eyes causes moderate eye irritation with prolonged contact.

Effect of chronic exposure includes severe skin, eye, respiratory irritation. May cause kidney and liver damage and disorders, possible brain damage.

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

To an unconscious person do not give anything orally and do not induce vomiting. Show this material safety data sheet, product label or packaging to the help providing medical personnel.

Treatment for ethylene glycol intoxication, depending on the condition of the injured person shall include:

Gastric lavage within up to 2 hours from ingestion, treatment of cardiopulmonary disorders, administration of ethylene alcohol (intravenously by drip infusion of 5-15% ethylene alcohol solution in 5% glucose).

In case of severe intoxication apply hemodialysis, diuresis.

(data in section 4 apply to 100% ethylene glycol)

## Section 5. Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media: carbon dioxide, dry powders, alcohol-resistant foams, water.  
 Unsuitable extinguishing media: not known.

### 5.2. Special hazards arising from the substance or mixture

Flammable product. In fire carbon oxides are produced. Avoid inhaling of combustion product as they pose a threat to health.

### 5.3. Advice for firefighters

Alert everyone in the vicinity of the incident. Evacuate all persons not taking part in fire-fighting action from the danger area, if necessary, call the rescue teams. Persons participating in fire fighting activities shall be trained, wear protective clothing and a self-contained breathing apparatus.

## Section 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with the releasing substance. Do not inhale vapours. Provide adequate ventilation.

### 6.2. Environmental precautions

Do not allow the product to enter the sewage and drainage systems, and also the ground and surface water or soil.

### 6.3. Methods and material for containment and cleaning up

Stop or limit the leakage and isolate the contaminated area. Cover with a liquid absorbing material, e.g. sand, earth, vermiculite, diatomaceous earth, sawdust. Mechanically collect to a correctly labelled, tight container and submit for disposal. Wash off the remains with plenty of water.

### 6.4. References to other sections

Personal protective measures - see section 8. Waste handling - see section 13.

## Section 7. Handling and storage

### 7.1. Precautions for safe handling

Follow general occupational health and safety regulations for chemicals handling and good manufacturing practice; strictly adhere to the established procedures and all manufacturer's recommendations. Use in an appropriately ventilated place. Wear cotton protective clothing, rubber-coated front apron, safety glasses, protective gloves. Do not eat, drink or smoke when using the substance. Avoid contact with fire and sources of ignition. Do not allow the released liquid to enter drains.

### 7.2. Conditions for safe storage, including any incompatibilities

Store only in sealed, properly labelled containers in a cool, ventilated room. Store in HDPE containers or tanks. Protect the product from moisture from the air and sunlight. Store at <40°C. Storage period: up to 12 months. Prohibit smoking, using open fire and eating in the place of product storage.

### 7.3. Special end use(s)

No data available on special uses.

## Section 8. Exposure controls/personal protection

### 8.1. Control parameters

Maximum acceptable concentration (mg/m<sup>3</sup>) in the workplace effective in Poland:

Specifications	MAC	STEL	TWA
Ethylene glycol CAS No.: 107-21-1	15 mg/m <sup>3</sup> ,	50 mg/m <sup>3</sup> ,	-

Occupational exposure indicators effective in the EU:

Specifications	Acceptable values:			
	8-hour		short-term	
	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm
Ethylene glycol CAS No.: 107-21-1	52	20	104	40

Possibility of a significant uptake of the compound through the skin.

**DNEL**

- personnel, long-term exposure through the skin: 106 mg/kg bw/day
- personnel, long-term exposure by inhalation: 35 mg/m<sup>3</sup>,
- general population including consumer, long-term exposure by skin: 53 mg/kg bw/day
- general population including consumer, long-term exposure by inhalation: 7 mg/m<sup>3</sup>,

**PNEC**

- freshwater environment: 10 mg/l
- seawater environment: 1 mg/l
- freshwater environment: 10 mg/l
- sludge (freshwater): 20.9 mg/kg
- soil: 1.53 mg/kg
- wastewater treatment plant environment: 199 mg/l  
(values for 100% ethylene glycol)

**8.2. Exposure control**

Avoid direct product contact with eyes or skin. Observe general precautionary measures required when using chemicals.

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

Eye protection: In case of possible exposure to product vapours or sprays wear goggle type protective glasses.

Respiratory Protection: Respiratory tract protection equipment in case of insufficient ventilation or during long-term exposure. Effective ventilation in the workplace is recommended (general, local).

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

Appearance	homogeneous liquid, colourless to light straw-yellow
Odour	faint or odourless
odour threshold	not determined
pH	6,0 - 7,5 (at 20°C diluted with water by volume 1:1)
freezing point	does not freeze in - 40°C
initial boiling point	not determined
boiling temperature range	above 120 °C
ignition temperature	above 85 °C
ignition point	not determined
auto-ignition temperature	398°C (for 100% ethylene glycol)
evaporation rate	not determined
flammability (solid, gas)	not applicable - the substance is a liquid
Explosion limits	not determined
vapour buoyancy	not determined
vapour density to air	not determined
density	1,092 - 1,097 g/cm <sup>3</sup> (at 15,5°C)
solubility	water - complete Other solvents - alcohol, acetone, ether insoluble in - aliphatic hydrocarbons (hexane, extraction petroleum)

	and carbon tetrachloride (for 100% ethylene glycol)
partition coefficient: n-octanol/water:	not determined
decomposition temperature	not determined
viscosity	11 - 13 mm <sup>2</sup> /s (at 20°C)
explosive properties	not determined
oxidising properties	not determined

**9.2. Other information**

No data available

**Section 10. Stability and reactivity****10.1. Reactivity**

Unknown in the recommended usage conditions.

**10.2. Chemical stability**

Product stable under normal conditions of storage and use.

**10.3. Possibility of hazardous reactions**

The product ignites on 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. Humidity from the air.

**10.5. Incompatible materials**

Strong acids (chlorosulphonic acid, sulphuric acid, oleum, perchloric acid), strong bases (sodium hydroxide), dimethyl terephthalate, phosphorus pentasulphide, strong oxidizers.

**10.6. Hazardous decomposition products**

Unknown in the recommended usage conditions.

(data in section 10 apply to 100 % ethylene glycol)

**Section 11. Toxicological information****11.1. Information on toxicological effects**

ATE mix= 588,30

**Acute Toxicity**Oral (rat) LD<sub>50</sub> - 7,112 mg/kgInhalation (rat, 6h) LC<sub>50</sub> > 2.5 mg/lAfter application to the skin (mouse) LD<sub>50</sub> > 3,500 mg/kg**Repeated dose toxicity**

Oral (rat) NOAEL = 150 mg/kg bw/day

After application to the skin (mouse) NOAEL approx. 3,549 mg/kg bw/day

Corrosive/irritant to skin: non-irritant.

Serious eye damage/irritant to eyes: corrosive.

Sensitising to the respiratory tract or skin:

Mutagenicity to reproductive cells: shows no genotoxicity In vitro or In vivo.

Carcinogenicity: long-term toxicity studies conducted on rodents have shown that this substance is not carcinogenic

Harmful effects on reproduction: no reproductive toxicity.

Teratogenicity: no developmental toxicity.

Toxicity to organs or systems – repeated exposure:

It is suspected that during repeated oral exposure to the above product oxalate nephrosis may occur. Target

organ may be the kidneys.

Delayed, direct and chronic effects of short and prolonged exposure:

#### Effects of acute exposure:

Inhalation: due to the low vapour pressure the product has a low inhalation toxicity. Prolonged exposure or high concentrations of vapours or mists may cause minor respiratory irritation and headaches or dizziness, nausea, drowsiness, vomiting, central nervous system disorders, involuntary eye movement, coma.

Ingestion: causes irritation of the gastrointestinal tract, central nervous system disorders, liver and kidney damage.

At the first stage of intoxication after ingestion symptoms similar to alcohol intoxication occur: agitation, slurred speech, impaired balance and coordination of movements, headaches and dizziness, drowsiness, etc., followed by nausea and vomiting, diarrhea. Breathing disorders may occur. In case of severe intoxication, blood circulation disorders, increased heart beat, drop in blood pressure, loss of consciousness, coma with seizures, collapse. Possible death due to pulmonary arrest.

*Lethal dose for humans is approx. 100 ml.*

Contact with skin: skin burns and irritation.

Eye contact. Prolonged contact with eyes causes moderate eye irritation.

#### Effects of chronic exposure:

May exacerbate existing skin, eye, respiratory disorders. May cause damage to the kidneys and liver. Possible damage to the central nervous system.

(data in section 11 apply to 100 % ethylene glycol)

## Section 12. Ecological information

### 12.1. Toxicity

Acute toxicity to the aquatic environment:

- fish (Pimephales promelas, 96 hrs.) LC<sub>50</sub> - 72,860 mg/l
- aquatic invertebrates (Daphnia magna, 48 h) EC<sub>50</sub> > 100 mg/l
- algae (Pseudokirchneriella subcapita, 96 h) EC<sub>50</sub>: 6,500 - 13,000 mg/l

Chronic toxicity to the aquatic environment:

- fish (Pimephales pro molasses, 7 d) NOEC - 15,380 mg/l
- daphnia (Ceriodaphnia sp, 7 d) NOEC - 8,590 mg/l

Toxicity to microorganisms:

- bacteria (Pseudomonas putida, 16 h) TTC (EC<sub>5</sub>): 10,000 mg/l
- activated sludge in the wastewater treatment plant (exposure time 30 min.) EC20: 1,995 mg/l

Data on acute and chronic toxicity to aquatic organisms show that the product is not hazardous to the aquatic environment and the operation of biological wastewater treatment plants.

#### *Toxicity to terrestrial organisms*

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

The product should not pose a risk for soil organisms.

### 12.2. Persistence and degradability

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

Ethylene glycol in the air decomposes after evaporation (intermediate photodegradation processes) reacting with free radicals (DT<sub>50</sub> is approx. 46.3 h)

### 12.3. Bioaccumulative potential

There are no studies available on the bioaccumulation potential in the aquatic environment and soil. Based on the estimated value of the adsorption coefficient (log K<sub>oc</sub> = 0) and the octanol/water partition coefficient (log K<sub>oc</sub>

= - 1.36), accumulation in organisms is not expected.

#### 12.4. Mobility in soil

Based on the available physicochemical data, the estimated value of the adsorption coefficient log K<sub>oc</sub> is 0. It is considered that the substance is not adsorbed in the solid phase of soil.

#### 12.5. Results of PBT and vPvB assessment

Not applicable

#### 12.6. Other adverse effects

Information on any other adverse effects on the environment, endocrine disruption or impact on global warming are not available.

(data in section 12 apply to 100 % ethylene glycol)

### Section 13. Disposal considerations

#### 13.1. Waste treatment methods

Do not discharge into drains. Do not allow the substance to enter surface or ground water. Product waste to be collected for disposal (recycling) or incinerate in appropriate plants.

Used packaging should be submitted to the packaging waste recycling companies.

Classification to be specified according to the place of manufacture as per criteria defined by the applicable regulations. If the product was used in any further operations/processes, the end user should define the produced waste and assign the correct code.

### Section 14. Transport information

The product is not classified in the hazardous materials list. it is not regulated by the ADR regulation.

#### 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 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) 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)

### 15.2. Chemical safety assessment

No data available on conducting the chemical safety assessment for the substance.

## Section 16. Other information

### Explanation of abbreviations and acronyms:

Acute Tox.4	- Acute toxicity, category 4
STOT Rep. Exp.2	- Specific target organ toxicity - repeated exposure, category 2
Eye Irrit.2	- Eye irritation, category 2
Flam Liq.2	- Flammable liquids, category 2
STOT SE 3	- Specific target organ toxicity - single exposure, category 3

### Full text of P-phrases and H-statements

H302	- Harmful if swallowed.
H373	- May cause damage to organs through a prolonged or repeated exposure
H 319	- Causes serious eye irritation
H 336	- May cause drowsiness or dizziness
H 225	- Highly flammable liquid and vapour
P 201	- Obtain special instructions before use.
P 270	- Do not eat, drink or smoke when using this product.
P 301+ P 312	- 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.

Information presented above are based on the currently available data describing the product, as well as the manufacturer's experience and knowledge in this area. They shall be treated as a supporting information in safe handling during transport, storage and product usage. However, this does not indemnify the user from the responsibility for the incorrect usage of the above information and adherence to all relevant regulations.