

## MATERIAL SAFETY DATA SHEET

Compliant with: HRN EN ISO 11014-1:1997, ISO 1014-1:1994, ANSI Z400.1:2004,  
UN GHS-2nd rev.:2007, Directive 1999/45/EC, Regulation 2006/1907/EC

PRODUCT NAME: **FLAMAUTO** automatic fire extinguisher  
February 25th, 2008

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### SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **FLAMAUTO** automatic fire extinguisher

GENERAL USE: automatic fire extinguisher

PRODUCT DESCRIPTION: clear, blue liquid in an 580 ml welded glass ampoule

MANUFACTURER'S NAME:

FLAMARK d.o.o.

REVISED: February 25th, 2008

SUPERSEDES: September 06th, 2007

ADDRESS (NUMBER, STREET, P.O. BOX)

Turopoljska 2

TELEPHONE NUMBER FOR INFORMATION

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(CITY, AND ZIP CODE)

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COUNTRY

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EMERGENCY TELEPHONE NUMBER

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E-mail: info@flamark.com

DISTRIBUTOR'S NAME:

ADDRESS (NUMBER, STREET, P.O. BOX)

TELEPHONE NUMBER FOR INFORMATION

(CITY, AND ZIP CODE)

COUNTRY

EMERGENCY TELEPHONE NUMBER

### SECTION 2 – COMPOSITION/HAZARDOUS INGREDIENTS

Chemical :

Preparation/Mixture :

Chemical name:

CAS No.:

PREPARATION INGREDIENTS:

water, urea, ammonium and other salts of mineral acids,  
AFFF surfactant-telomere based (less than 5 wt% in solution)

HAZARDOUS INGREDIENTS:

AFFF surfactant telomere-based; surfactant complies with criteria of DIN EN 1568-3:2000,  
Specification for low expansion foam concentrates for surface application to water-immiscible liquids;  
classified as harmful: R22, R36, (less than 5 wt% in **FLAMANU** grenade fire extinguisher solution)  
R22 Harmful if swallowed R36 Irritating to eyes

### SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

clear, blue liquid in welded glass ampoule, non-toxic and non-hazardous to human body or animals

POTENTIAL HEALTH EFFECTS

INHALATION: not expected to be toxic by inhalation

SKIN: no significant irritation is expected to occur upon short-term exposure.

EYES: minimal irritation and discomfort may result from short-term contact with liquid.

INGESTION: not found to be toxic by oral exposure

### SECTION 4 - FIRST AID MEASURES

INHALATION: no harm

SKIN: wash affected area with soap and water

EYES: remove contact lenses. Flush eyes with clear running water while holding eye lids open.

INGESTION: non-toxic, if swallowed do not induce vomiting, seek medical advice immediately

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### SECTION 5-FIRE FIGHTING MEASURES

GENERAL HAZARDS: no danger of fire, product itself is fire extinguisher  
EXTINGUISHING MEDIA: none  
FIRE FIGHTING PROCEDURES: none.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: none  
HAZARDOUS COMBUSTION PRODUCTS: none

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: flush area with water.

### SECTION 7 HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: protect from extreme temperatures

### SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROL: none required  
PERSONAL PROTECTION: practice safe workplace habits  
RESPIRATORY PROTECTION (SPECIFY TYPE): none required  
PROTECTIVE GLOVES: none required  
EYE PROTECTION: none required  
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: none required  
WORK / HYGIENIC PRACTICES: practice safe workplace habits

### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: clear, blue liquid in an 580 ml welded glass ampoule, mild ammonia odor	VAPOR PRESSURE: not applicable
pH 7,8 – 8,2	LIQUID DENSITY (WATER = 1) 1,10 – 1,14
BOILING POINT/ BOILING RANGE: 95 - 105° C	SOLUBILITY IN WATER: water solution
FLASH POINT: not applicable	VISCOSITY: not determined, similar to water
FLAMMABLE LIMITS: not applicable	VAPOR DENSITY (AIR =
AUTOIGNITION TEMPERATURE: not applicable	EVAPORATION RATE (WATER = 1) 1

### SECTION 10 - STABILITY AND REACTIVITY

STABILITY:	UNSTABLE: STABLE: X	CONDITIONS TO AVOID: extreme temperatures, open flames
INCOMPATIBILITY (MATERIALS TO AVOID): not applicable		
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: decomposition will not occur if handled and stored under normal conditions. No hazardous decomposition or byproducts in case of fire or accident.		
HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: X	CONDITIONS TO AVOID: none	

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### SECTION 11 -TOXICOLOGICAL INFORMATION

Acute toxicity	Oral rats LD <sub>50</sub>	>10000 mg/kg	Testing have been done with doses up to 10000 mg/kg. According to test results LD <sub>50</sub> is higher than 10000 mg/kg.
	Dermal rats LD <sub>50</sub>	>3000 mg/kg	Testing has been done with doses up to 3000 mg/kg. After post-mortem examination of animals no macroscopic changes in organs and organism systems have been found

**Conclusion :**

According to Globally Harmonized System of Classification of Chemicals (GHS) issued by UN in 2007. (NY, Geneva) as ST/SG/AC.10/30/Rev.2 (Part 3. Health hazards, Ch. 3.1. Acute toxicity, CH. 3.1.3. Classification criteria for mixtures) and to Directive 1999/45/EC and Regulation 2006/1907/EC **FLAMAUTO** automatic fire extinguisher solution is classified as not toxic and not dangerous for skin contact.

### SECTION 12- ECOLOGICAL INFORMATION

Daphnia magna acute toxicity test	Testing method according to HRN EN ISO 6341:2000		(EC <sub>50</sub> ,48hr) = 316 mg/l
	<p><b>Conclusion :</b> According to Globally Harmonized System of Classification of Chemicals (GHS) issued by UN in 2007. (NY, Geneva) a s ST/SG/AC.10/30/Rev.2 (Part 4. Environmental hazards, Ch. 4.1. Hazardous to the aquatic environment, Ch. 4.1.3. Classification criteria for mixtures) and to Directive 1999/45/EC and Regulation 2006/1907/EC <b>FLAMAUTO</b> automatic fire extinguisher solution is classified as not toxic to water organisms and is not fresh water pollutant.</p>		
Toxicity to active mud bacterium	Testing method according to ÖNORM B5105		Toxicity = 1,29 %
	<p>By 5-days test, the mixture "peptone-<b>FLAMANU</b> grenade fire extinguisher solution", compared to the peptone as reference substance, showed better results (less active mud toxicity as peptone solution). According to ÖNORM B5105 article 7.4 the product is not dangerous to active mud bacterium if its toxicity is &lt; 10%.</p> <p><b>Conclusion:</b> <b>FLAMAUTO</b> automatic fire extinguisher solution is not toxic to active mud bacterium.</p>		
Oxygen demand	COD	DIN 38409 T41:1996	20870 mg O <sub>2</sub> / l
	BOD <sub>5</sub>	HRN EN ISO5815:1998	7850 mg O <sub>2</sub> / l
<p><b>Conclusion :</b> According to Globally Harmonized System of Classification of Chemicals (GHS) issued by UN in 2007. (NY, Geneva) as ST/SG/AC.10/30/Rev.2 (Annex 9.4 Degradation, Ch. 9.4.2.3 BOD<sub>5</sub>/COD), <b>FLAMAUTO</b> automatic fire extinguisher solution has ratio BOD<sub>5</sub>/COD close to the limit condition of 50%.</p>			
Biodegradability	Testing method according to EN ISO 9439:2000		Biodegradability (28 days) = 95.8 % Biodegradability (10 days) = 85,0 %
	<p><b>Conclusion :</b> <b>FLAMANU</b> grenade fire extinguisher solution is classified as rapid biodegradable mixture.</p>		

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### SECTION 13-DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: not considered as a hazardous waste. Dispose after diluting with water.

According to Directive 1999/45/EC and Regulation 2006/1907/EC, waste codes are application specific and should be assigned by the user based on the application for which the product is used. Dispose it in accordance with Local, State, or EU Regulations. Consult your Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

### SECTION 14 - TRANSPORT INFORMATION

According to Directive 1999/45/EC, Regulation 2006/1907/EC, 94/55/EC and 96/49/EC **FLAMAUTO** automatic fire extinguisher is not labeled as hazardous material. The chemical solution is transported and delivered only in welded glass ampoule and packed in anti-shock materials and carton box. Any of them do not include any controlled materials. No restriction for transportation of product.

Note: transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 -177, IMDG, IATA, EU Regulations, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

### SECTION 15 - REGULATORY INFORMATION

RISK PHRASES:  
Not classified

SYMBOL(S) REQUIRED FOR LABEL:  
Not required

SAFETY PHRASES:  
Not classified

According to laboratory testing and to Globally Harmonized System of Classification of Chemicals (GHS) issued by UN in 2007. (NY, Geneva) as ST/SG/AC.10/30/Rev.2 and Directive 1999/45/EC and Regulation 2006/1907/EC **FLAMAUTO** automatic fire extinguisher solution is not classified as harmful.

### SECTION 16 - OTHER INFORMATION

**EAN CODE:** 3859891646104

**Declaration of Conformity:** The manufacturer hereby declares under his sole responsibility that the product identified above comply with the protection requirements of the 2001/95/EC of 3 December 2001 on General Product Safety, European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste and 93/465/EEC: Council Decision of 22 July 1993 concerning the modules for the various phases of the conformity assessment procedures and the rules for the affixing and use of the CE conformity marking, which are intended to be used in the technical harmonization directives.

**Disclaimer:**

This information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.