

SAFETY DATA SHEET

Commercial product name: SIRON SMOKE LIQUID
Date of issue: 18 June 2015
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SECTION 1: Identification of the substance/mixture and of the company/undertaking.

Product identifier
Trade name: SIRON SMOKE LIQUID

Relevant identified uses of the substance or mixture and uses advised against
Use: Smoke liquid for use in a DryDeluge Tester smoke generator.
Product category: PROC11 (Non industrial spraying).
Air dispersive techniques.
Substances can be inhaled as aerosols. The energy of the aerosol particles may require advanced exposure controls.

Details of the supplier of the safety data sheet
Manufacturer/supplier: SIRON fire protection equipment
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NL-7543PT Enschede
The Netherlands
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Emergency telephone number:
The Netherlands: National Poison Information Centre: +31 (0) 30 247 88 88
Belgium: Belgian Poison Centre: +32 (0) 70 245 245
United Kingdom: UWIC: +44 (0) 29 204 16388

SECTION 2: Hazards identification.

EMERGENCY OVERVIEW

Colorless liquid. Faint odor. No special hazards exist with this product. As with any chemical substance, caution and care will prevent unnecessary accidents and safety problems. Read instructions on label before use. HEALTH CAUTION: Smoke from this liquid, like any other common material in an aerosolized state, may be irritating to or cause allergic symptoms in some persons with allergenic sensitivity or those with other respiratory conditions. Persons with asthma or other respiratory conditions should avoid exposure to the smoke.

Classification of the substance or mixture
Classification in accordance with Regulation (EC) no 1272/2008
Void.

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Label elements and precautionary statement	
Hazard pictograms:	-
Signal word:	-
Hazard statements:	-
Precautions:	-
Classification in accordance with Directive 67/548/EEC or Directive 1999/45/EC Void.	
Label elements	
Hazard symbols:	-
Classification of the labelling:	-
Risk phrase(s):	-
Safety advice:	-
Hazard-determining components for labelling: -	
Other hazards	
Keep locked up and out of the reach of children. Avoid contact with skin and eyes. If swallowed, seek medical advice immediately and show this container or label.	
Results of PBT and vPvB assessment	
PBT:	No.
vPvB:	No.

SECTION 3: Composition/information on ingredients.

Chemical characterization:	Mixture.
Description:	Preparation based on i.a. 2,2'-(ethylenedioxy)diethanol and propane-1,2-diol.
Hazardous ingredients (and carrier material)	
2,2'-(Ethylenedioxy)diethanol (triethyleneglycol)	
CAS#:	112-27-6
EC#:	203-953-2
Index#:	-
REACH reg.#:	-
Content (W/W):	< 40 %
Danger:	
1999/45/EC:	-
1272/2008/EC:	-
Propane-1,2-diol	
CAS#:	57-55-6
EC#:	200-338-0
Index#:	-
REACH reg.#:	-
Content (W/W):	< 40 %
Danger:	
1999/45/EC:	-
1272/2008/EC:	-

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Full text of R-, H- and EUH-phrase(s): see section 16.

SECTION 4: First aid measures.

Description of first aid measures

General information:

Not dangerous under normal use circumstances.

Eye contact:

Remove possible contact lenses. Contamination of the eyes must be treated by thorough irrigation with water for 20 minutes, with the eyelids held open. A doctor (or eye specialist) should be consulted immediately.

Skin contact:

Remove contaminated clothing. Remove mechanically and wash off with plenty of soap and water, carefully apply cream to clean skin. If symptoms develop like eczema or skin irritation, obtain medical attention.

Swallowing:

Provided the patient is conscious, wash out mouth with plenty of water. If symptoms develop, obtain medical attention and this safety data sheet. Do not induce patient to vomit.

If aerosol or vapour is inhaled in high concentrations:

Take the person into the fresh air and keep him warm, let him rest. Get medical assistance if breathing problems persist.

Most important symptoms and effects, both acute and delayed

Inhalation:

This product is slightly respiratory irritant: inhalation at high concentrations of aerosol could lead to harmful effects such as mucous membrane and respiratory system irritation. At high temperatures, mists, vapours or smoke may be released that may be irritating to eyes, nose, throat and lungs.

Skin contact:

Not irritant for skin. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis, contact eczema and inflammation.

Eye contact:

Slightly irritant for eyes. Causes reddening and swelling of the conjunctiva and pain at high concentrations.

Ingestion:

Highly unlikely under normal industrial use. Ingestion of large quantities may cause irritation of the gastrointestinal tract, vomiting, central nervous system depression, dizziness, headaches, nausea.

Indication of any immediate medical attention and special treatment needed

Symptomatic treatment and supportive therapy as indicated.

SECTION 5: Firefighting measures.

Extinguishing media

Suitable extinguishing media:

Use the usual extinguishing media.

Water or foam can cause foam formation in combination with the product.

Unsuitable extinguishing media for safety reasons:

Powerful water jet.

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Special hazards arising from the substance or mixture	Not classed as flammable and gives no contribution at a fire. If involved in a fire, it may emit noxious and toxic fumes. Combustion products may include: carbon monoxide and carbon dioxide.
Advice for firefighters	
Special protective clothing:	Fire - men have to wear self - contained breathing apparatus (with mouth – and nose protection) and complete (acid-) protective clothing.
Other information:	No specific requirements.

SECTION 6: Accidental release measures.

Personal precautions, protective equipment and emergency procedures:	Wear appropriate personal protective equipment including splash goggles, a full suit and boots. Avoided contact with eyes and skin. Risk of skidding. As an aerosol or respirable smoke in case of application of the material as smoke liquid, use respiratory protection (A2/P3 or AX/P3).
Environmental precautions:	Do not discharge into drains, sewers or watercourses. Prevent spread over a wide area (e.g. by containment or sand barriers).
Methods and material for containment and cleaning up:	Absorb spillages onto sand, earth, sawdust, vermiculite, limestone grind or any suitable adsorbent material. Collect the waste product in suitable drums for disposal. Wash the spillage area clean with plenty of water.
Reference to other sections:	Information regarding safe handling – see section 7. Information regarding personal protective equipment – see section 8. Information regarding disposal – see section 13.

SECTION 7: Handling and storage.

Precautions for safe handling	
Handling:	When handling observe the usual precautionary measures for chemicals. Do not breathe vapour / mist / aerosol. Contain solid material, stir before use. The gas is heavier than air, keep away from small rooms and deep lying drains. Only use in combination with the Haagen smoke generator or generators of which the temperature is calibrated by Haagen FTP. If intense smoke is released from a smoke generator, respiratory protection is required.
Information about fire - and explosion protection:	Keep away from hot surfaces / open fire.
Conditions for safe storage, including any incompatibilities	

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Storage:	Keep container tightly closed in a well-ventilated place. Ventilate along the floor. Prevent product temperatures above 40 °C and below 0 °C. Store the product free of frost according to local regulations.
Suitable storage material:	Stainless steel, coated steel, polyethylene or original packaging.
Storage material to avoid:	Aluminium is less suitable.
Storage temperature:	Recommended storage temperature 20 ± 15 °C.
Specific end use(s):	No further relevant information available.

SECTION 8: Exposure controls/personal protection.

Control parameters

Ingredients with limit values that require monitoring at the workplace:

Product information: 112-27-6	2,2'-(Ethylenedioxy)diethanol		
TGG 8 h	mg/m ³ (ppm)	1000 (-) Germany, Switzerland	
TGG 15 minutes	mg/m ³ (ppm)	2000 (-) Germany, Switzerland	

Product information: 57-55-6	Propane-1,2-diol		
TGG 8 h	mg/m ³ (ppm)	474 (150) UK 79 (25) Norway	

Dangerous ingredients with DN(M)EL:				
Product information: 112-27-6 2,2'-(Ethylenedioxy)diethanol	Exposure	Value	Unit	Population / Effects
DN(M)EL	Short-term dermal	-	mg/kg bw/day	Workers Local
DN(M)EL	Short-term inhalation	50	mg/m ³	Workers Local
DN(M)EL	Long-term dermal	40	mg/kg bw/day	Workers Systemic
DN(M)EL	Long-term inhalation	-	mg/m ³	Workers Systemic
DN(M)EL	Long-term dermal	-	mg/kg bw/day	Workers Local
DN(M)EL	Long-term inhalation	-	mg/m ³	Workers Local
DN(M)EL	Short-term dermal	-	mg/kg bw/day	General population Local
DN(M)EL	Short-term inhalation	25	mg/m ³	General population Local
DN(M)EL	Long-term dermal	20	mg/kg bw/day	General population Systemic
DN(M)EL	Long-term inhalation	-	mg/m ³	General population Systemic
DN(M)EL	Long-term oral	-	mg/kg bw/day	General population Systemic
DN(M)EL	Long-term dermal	-	mg/kg bw/day	General population

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DN(M)EL	Long-term inhalation	-	mg/m ³	Local General population Local
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Dangerous ingredients with DN(M)EL:				
Product information: 57-55-6 Propane-1,2-diol	Exposure	Value	Unit	Population / Effects
DN(M)EL	Short-term dermal	-	mg/kg bw/day	Workers Local
DN(M)EL	Short-term inhalation	-	mg/m ³	Workers Local
DN(M)EL	Long-term dermal	-	mg/kg bw/day	Workers Systemic
DN(M)EL	Long-term inhalation	168	mg/m ³	Workers Systemic
DN(M)EL	Long-term dermal	-	mg/kg bw/day	Workers Local
DN(M)EL	Long-term inhalation	10	mg/m ³	Workers Local
DN(M)EL	Short-term dermal	-	mg/kg bw/day	General population Local
DN(M)EL	Short-term inhalation	-	mg/m ³	General population Local
DN(M)EL	Long-term dermal	-	mg/kg bw/day	General population Systemic
DN(M)EL	Long-term inhalation	50	mg/m ³	General population Systemic
DN(M)EL	Long-term oral	-	mg/kg bw/day	General population Systemic
DN(M)EL	Long-term dermal	-	mg/kg bw/day	General population Local
DN(M)EL	Long-term inhalation	10	mg/m ³	General population Local

Dangerous ingredients with PNEC:			
Product information: 112-27-6 2,2'-(Ethylenedioxy)diethanol	Value	Unit	Compartment
PNEC	10	mg/l	Fresh water
PNEC	1	mg/l	Marine water
PNEC	10	mg/l	Intermittent releases
PNEC	10	mg/l	STP (sewage treatment plant)
PNEC	46	mg/kg dwt	Sediment fresh water
PNEC	-	mg/kg dwt	Sediment marine water
PNEC	3.32	mg/kg wwt	Soil
PNEC	-	mg/l	Oral (foodstuffs)

Dangerous ingredients with PNEC:			
Product information: 57-55-6 Propane-1,2-diol	Value	Unit	Compartment

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PNEC	260	mg/l	Fresh water
PNEC	26	mg/l	Marine water
PNEC	183	mg/l	Intermittent releases
PNEC	20000	mg/l	STP (sewage treatment plant)
PNEC	572	mg/kg dwt	Sediment fresh water
PNEC	57.2	mg/kg dwt	Sediment marine water
PNEC	50	mg/kg wwt	Soil
PNEC	-	mg/l	Oral (foodstuffs)

Exposure controls

Personal protective equipment:

Respiratory protection:



Do not smoke, eat or drink whilst working.

Required at inadequately ventilated workplaces. As respirable smoke in case of application of the material as smoke liquid, use respiratory protection (A2/P3 or AX/P3).

Skin and body:



Wear suitable protective clothing (preferable heavy cotton or disposable coverall), gloves and eye / face protection. Take off immediately all contaminated clothing. Rinse the skin with a lot of water or take a shower.

Hands:



Wash hands before breaks and at the end of work. Protective gloves of neoprene or butyl rubber should be worn when handling with the product.

Eyes:



Chemical safety glasses, full face shield if splashing is possible. Eye – wash.

Measuring procedures:

In order to establish compliance with an exposure limit and to establish that exposure is properly controlled, it may be necessary to determine the concentration of the substances in the inhalation zone or in the general workspace.

Environmental exposure controls:

Leakage of the material and concentrated solution must be stopped.

SECTION 9: Physical and chemical properties.

Information on basic physical and chemical properties

General information

Appearance:

Liquid.

Colour:

Transparent.

Odour:

Almost no smell.

Odour threshold:

Not determined.

pH-value:

Not determined.

Change in condition

Melting point/melting range:

< 0 °C.

Boiling point/boiling range:

> 100 °C.

Flash point:

> 93 °C.

Flammability

(solid, gas):

Not applicable.

Auto-ignition:

> 370 °C.

Explosion hazard:

The product is not classified as explosive.

Explosive limits

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Lower:	0.2 (for 2,2'-(ethylenedioxy)diethanol), 2.6 (for propane-1,2-diol).
Upper:	9.2 (for 2,2'-(ethylenedioxy)diethanol), 12.6 (for propane-1,2-diol).
Vapour pressure:	Not determined.
Relative density:	1.05 (water = 1).
Vapour density:	Not determined.
Evaporation rate:	Not determined.
Solubility in/miscibility with water:	Fully.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity	
Dynamic:	Not determinate, a low viscosity.
Kinematic:	Not determined.
Other information	No further relevant information available.

SECTION 10: Stability and reactivity.

Reactivity

Chemical stability:	The product is stable if stored and handled as prescribed.
Thermal decomposition/Conditions to be avoided:	Avoid high (> 370 °C), low (frost) temperatures and open fire.
Possibility of hazardous reactions:	Strong oxidising agents. Strong acids. Bases.
Conditions to avoid:	Avoid heat, sparks, open flames, and other sources of ignition. Prevent evaporation in a non-ventilated environment. Protect against heat and direct sunlight. Protect against frost.
Incompatible materials:	Mildly corrosive for metals.
Hazardous decomposition products:	Unlikely under recommended storage temperature and intended use.

SECTION 11: Toxicological information.

Toxicology information

Acute toxicity from the components.

LD/LC50 values relevant for classification:

Product information:	2,2'-(Ethylenedioxy)diethanol, CAS# 112-27-6.
LD ₅₀ (oral, rat):	17000 mg/kg.
LD ₅₀ (dermal, rabbit):	> 3000 mg/kg.
Product information:	Propane-1,2-diol, CAS# 57-55-6.
LD ₅₀ (oral, rat):	20000 mg/kg.
LD ₅₀ (dermal, rabbit):	20800 mg/kg.

This health hazard assessment is based on information of the components.

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Primary irritant effect: on the skin: to the eye:	Not irritant for skin. Irritant effect.
Germ cell mutagenicity: Reproductive and developmental toxicity:	Not classified. Not classified.
Sensitisation:	No sensitising effects known.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):	Not classified.
Other information: In case of smoke inhalation:	The through the smoke machine of Haagen formed smoke is a suspension of (fixed or fluid) matters in the air. In the health risks that are connected with the parts in suspension, must not only taken in concern the agent own harmful effect, but also the concentration and the duration the exposure and the particle sizes. Specific to minimize these dangers we advise to use only by this material in combination with the Haagen smoke generators or generators of which the temperatures are calibrated by Haagen FTP.

SECTION 12: Ecological information.

Toxicology information

Ecotoxicity from the components.

Aquatic toxicity:

Product information: 2,2'-(Ethylenedioxy)diethanol, CAS# 112-27-6.
LC₅₀ (fish, 96 hrs): 59900 - 77400 mg/l.
EC₅₀ (daphnia magna, 48 hrs): 39305 mg/l.

Product information: Propane-1,2-diol, CAS# 57-55-6.
LC₅₀ (fish, 96 hrs): 23800 mg/l.
EC₅₀ (daphnia magna, 48 hrs): > 30000 mg/l.

The following ecological risk assessment is based on an assessment of the various ingredients in the product.

Persistence and degradability: As a preparation entirely biological degradable, contains 2,2'-(ethylenedioxy)diethanol or triethyleneglycol which however is not easy biologically degradable in water.

Behaviour in environmental compartments

Bioaccumulative potential: Gives almost no bioaccumulation.

Mobility in soil: No further relevant information available.

Further ecological information

General information: Do not discharge product into groundwater, surface water or sewage system.

Water hazard class 1 (German regulation)
(Self-assessment): Slightly hazardous to water.

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Results of PBT and vPvB assessment:	The mixture does not meet all of the assessment criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.
Other adverse effects:	Not dangerous for the ozone layer.

SECTION 13: Disposal considerations.

Waste treatment methods	
Product waste:	Incinerate in a hazardous waste incinerator suitable for the disposal of noxious chemical waste in accordance with the relevant regulation. The generation of waste should be avoided or minimised wherever possible. Waste, even small quantities, should never be poured down drains, sewers or watercourses.
EC Regulation for Disposal of Waste (EWC):	07 01 04*. Other organic solvents, washing liquids and mother liquors.
Uncleaned packaging Recommendation:	Comply with local regulations with regard to the recovery or disposal of waste. Remove any residue adhering to the walls.

SECTION 14: Transport information.

Land transport ADR/RID (cross-border)	
ADR/GGVSEB class:	Not a dangerous good according to the transport regulations.
Hazard identification number:	-
UN number:	-
Packing group:	-
Label:	-
Special marking:	-
UN proper shipping name:	-
Tunnel restriction code:	-
Inland shipping ADN/ADR	
ADN/R-class:	-
UN number:	-
Subsidiary risk	
Environmental hazards:	-
CMR properties:	-
Buoyancy:	-
Maritime transport IMDG	
IMDG-class:	-
UN number:	-
Label:	-
Packing group:	-
EMS number:	-
Marine pollutant:	-
Proper shipping name:	-

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Air transport ICAO-TI and IATA-DGR

ICAO/IATA class: -
UN number: -
Label: -
Packing group: -
Proper shipping name: -

Environmental hazards: No.

Special precautions for user: None.

Transport in bulk according to Annex II of MARPOL 73/78
and the IBC Code: No further relevant information available.

SECTION 15: Regulatory information.

Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations: -

EU regulations and directives which affect this mixture (not yet directly or indirectly mentioned):

Directive 89/686/EEC Personal protective equipment.
Directive 98/24/EC Risks related to chemical agents at work.

Chemical safety assessment: A chemical safety assessment has not been carried out.

SECTION 16. Other information.

List of relevant R-, H- and EUH-phrases from
sections 2 and 3: None.

History: Date of printing: 18 June 2015.
Date of previous issue: -
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Changes: Emergency Overview added in section 2.

“SIRON SMOKE LIQUID” is a trademark of SIRON fire protection equipment.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties. In all cases, it is the responsibility of the user to determine the applicability of such information and recommendations and the suitability of any products for its own particular purpose.