ASTROFLAME
PASSIVE FIRE STOP SYSTEMS

Safety Data Sheet

Soudal Fire Rated Expanding Foam

Revision 3 - 9th March 2021

Astroflame (Fireseals) LTD : Unit 8 , I.O Centre : Stephenson Road : Segensworth : Fareham : PO15 5RU
T - **01329 844500** : W - **www.astroflame.com** : E - **sales@astroflame.com**

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name:	Soudal Fire Rated Expanding Foam
Product code:	AFFRECFOAM
Registration number REACH:	Not applicable (mixture)
Product type REACH:	Mixture

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

1.2.1. Relevant identified uses

polyurethane

1.2.2. Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Company name:	Astroflame (Fire Seals) Ltd. Intumescent House Unit 8 The Io Centre Stephenson Road Segensworth Fareham England PO15 5RU
Tel:	01329 844 500
Email:	sales@astroflame.com

1.4. Emergency telephone number

Emergency tel:	01329 844 500 (office hours only)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Class	Category	Hazard statements
Aerosol	category 1	H222: Extremely flammable aerosol.
Aerosol	category 1	H229: Pressurised container: May burst if heated.
Carc.	category 2	H351: Suspected of causing cancer.
Acute Tox.	category 4	H332: Harmful if inhaled.
STOT RE	category 2	H332: Harmful if inhaled. H373: May cause damage to organs through prolonged or repeated exposure if inhaled.
Eye Irrit.	category 2	H319: Causes serious eye irritation.
STOT SE	category 3	H335: May cause respiratory irritation.
Skin Irrit.	category 2	H315: Causes skin irritation.
Resp. Sens.	category 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sens.	category 1	H317: May cause an allergic skin reaction.

2.2. Label elements

Contains: polymethylene polyphenyl isocyanate.

Signal word	Danger
H-statements	
H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H351	Suspected of causing cancer.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H315	Causes skin irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P280	Wear protective gloves, protective clothing and eye protection/face protection.
P405	Store locked up.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122°F.
P501	Dispose of contents/container in accordance with local/regional/national/international regulation.
Supplemental information	- Persons already sensitised to diisocyanates may develop allergic reactions when using this product. - Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. - This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

2.3. Other hazards

Gas/vapour spreads at floor level: ignition hazard

Contains component(s) included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Section 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark
dimethyl ether 01-2119472128-37	115-10-6 204-065-8	1%<C<10%	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(2)(10)	Propellant
1,1-difluoroethane 01-2119474440-43	75-37-6 200-866-1	1%<C<10%	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(10)	Propellant
polymethylene polyphenyl isocyanate	9016-87-9	C>25 %	Carc. 2; H351 Acute Tox. 4; H332 STOT RE 2; H373 Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315 Resp. Sens. 1; H334 Skin Sens. 1; H317	(1)(2)(8)(10)	Constituent
isobutane 01-2119485395-27	75-28-5 200-857-2	%<C<10%	Flam. Gas 1; H220 Press. Gas - Liquefied gas; H280	(1)(2)(10)	Propellant
(1,3-butadiene, conc<0.1%)					
reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester 01-2119486772-26		10%<C<25%	Acute Tox. 4; H302	(1)(10)	Constituent
triethyl phosphate 01-2119492852-28	78-40-0 201-114-5	1%<C<10%	Acute Tox. 4; H302 Eye Irrit. 2; H319	(1)(10)	Constituent

(1) For H-statements in full: see heading 16
(8) Specific concentration limits, see heading 16
(2) Substance with a Community workplace exposure limit
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

Section 4: First aid measures

4.1. Description of first aid measures

General:	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
After inhalation:	Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
After skin contact:	Wash immediately with lots of water. Take victim to a doctor if irritation persists.
After eye contact:	Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
After ingestion:	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service if you feel.

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

4.2.1 Acute symptoms

After inhalation:	Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Runny nose. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible inflammation of the respiratory tract. Risk of lung oedema. Respiratory difficulties.
After skin contact:	Tingling/irritation of the skin.
After eye contact:	Irritation of the eye tissue. Lacrimation.
After ingestion:	No effects known.

4.2.2 Delayed symptoms

No effects known.

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

If applicable and available it will be listed below.

Section 5: Fire-fighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media

BC powder. Carbon dioxide. Sand/earth.

5.1.2 Unsuitable extinguishing media:

Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, phosphorus oxides, hydrogen bromide, hydrogen chloride, hydrofluoric acid) (carbon monoxide - carbon dioxide). Pressurised container: May burst if heated.

5.3. Advice for fire-fighters

5.3.1 Instructions:

If exposed to fire cool the closed containers by spraying with water. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistant risk of physical explosion. Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.

5.3.1 Instructions:

Gloves. Protective goggles. Head/neck protection. Protective clothing. Heat/fire exposure: compressed air/ oxygen apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment.

6.1.1. Protective equipment for non-emergency personnel

See heading 8.2

6.1.2. Protective equipment for emergency responders

Gloves. Protective goggles. Head/neck protection. Protective clothing.
Suitable protective clothing
See heading 8.2

6.2. Environmental precautions

Dam up the liquid spill. Use appropriate containment to avoid environmental contamination.

6.3. Methods and material for containment and cleaning up

Allow product to solidify and remove it by mechanical means. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean (treat) contaminated surfaces with acetone. Take collected spill to manufacturer/ competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See heading 8.2

Section 7: Handling and storage

7.1. Precautions for safe handling

Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Gas/vapour heavier than air at 20°C. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. Safe storage requirements

Storage temperature: < 50 °C. Store in a cool area. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Unauthorized persons are not admitted. Meet the legal requirements. Max. storage time: 1 year(s).

7.2.2. Keep away from

Heat sources, ignition sources.

7.2.3. Suitable packaging material:

Aerosol.

7.2.4. Non suitable packaging material:

No data available

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

Section 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

EU

Dimethylether	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	1000 ppm
	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	1920 mg/m³
Belgium		
Hydrocarbures aliphatiques sous forme gazeuse : (Alcanes C1-C4)	Time-weighted average exposure limit 8 h	1000 ppm
Oxyde de diméthyle	Time-weighted average exposure limit 8 h	1000 ppm
	Time-weighted average exposure limit 8 h	1920 mg/m³

8.1.1. Occupational exposure (continued)

The Netherlands

Dimethylether	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	496 ppm
	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	950 mg/m³
	Short time value (Public occupational exposure limit value)	783 ppm
	Short time value (Public occupational exposure limit value)	1500 mg/m³

France

Oxyde de diméthyle	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	1000 ppm
	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	1920 mg/m³

Germany

Dimethylether	Time-weighted average exposure limit 8 h (TRGS 900)	1000 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	1900 mg/m³
Isobutan	Time-weighted average exposure limit 8 h (TRGS 900)	1000 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	2400 mg/m³
pMDI (als MDI berechnet)	Time-weighted average exposure limit 8 h (TRGS 900)	0.05 mg/m³

UK

Dimethyl ether	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	400 ppm
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	766 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	500 ppm
	Short time value (Workplace exposure limit (EH40/2005))	958 mg/m³
Isocyanates, all (as -NCO) Except methyl isocyanate	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	0.02 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	0.07 mg/m³

USA (TLV-ACGIH)

Butane, all isomers	Short time value (TLV - Adopted Value)	1000 ppm

8.1.2. Sampling methods

If applicable and available it will be listed below.

Isocyanates	NIOSH	5521
Isocyanates	NIOSH	5521

8.1.3. Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4. DNEL/PNEC values

DNEL/DMEL - Workers

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	5.82 mg/m³	
	Acute systemic effects inhalation	22.4 mg/m³	
	Long-term systemic effects dermal	2.08 mg/kg bw/day	
	Acute systemic effects dermal	8 mg/kg bw/day	

triethyl phosphate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	11.81 mg/m³	
	Acute systemic effects inhalation	94.5 mg/m³	
	Long-term systemic effects dermal	3.35 mg/kg bw/day	
	Acute systemic effects dermal	26.8 mg/kg bw/day	

DNEL/DMEL - General population

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	1.46 mg/m³	
	Acute systemic effects inhalation	11.2 mg/m³	
	Long-term systemic effects dermal	1.04 mg/kg bw/day	
	Acute systemic effects dermal	4 mg/kg bw/day	
	Long-term systemic effects oral	0.52 mg/kg bw/day	

triethyl phosphate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	2.91 mg/m³	
	Acute systemic effects inhalation	23.28 mg/m³	
	Long-term systemic effects dermal	1.67 mg/kg bw/day	
	Acute systemic effects dermal	13.36 mg/kg bw/day	
	Long-term systemic effects oral	1.67 mg/kg bw/day	
	Acute systemic effects oral	13.36 mg/kg bw/day	

PNEC

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl

Compartments	Value	Remark
Fresh water	0.64 mg/l	
Marine water	0.064 mg/l	
Aqua (intermittent releases)	0.51 mg/l	
STP	7.84 mg/l	
Fresh water sediment	13.4 mg/kg sediment dw	
Marine water sediment	1.34 mg/kg sediment dw	
Soil	1.7 mg/kg soil dw	
Oral	11.6 mg/kg food	

8.1.4. DNEL/PNEC values (continued)

triethyl phosphate

Compartments	Value	Remark
Fresh water	0.632 mg/l	
Salt water	0.063 mg/l	
Aqua (intermittent releases)	9 mg/l	
STP	298.5 mg/l	
Fresh water sediment	5 mg/kg sediment dw	
Marine water sediment	**0.5 mg/kg sediment dw**	
Soil	0.64 mg/kg soil dw	

8.1.5. Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1. Appropriate engineering controls

Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly.

8.2.2. Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:

Wear gas mask with filter type A if conc. in air > exposure limit.

b) Hand protection:

Gloves.

Materials	Breakthrough time	Thickness
LDPE (Low Density Poly Ethylene)	10 minutes	0.025 mm

- materials (good resistance)

LDPE (Low Density Poly Ethylene).

c) Eye protection:

Protective goggles.

d) Skin protection:

Head/neck protection. Protective clothing.

8.2.3. Individual protection measures, such as personal protective equipment

See headings 6.2, 6.3 and 13

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form:	Aerosol
Odour:	Characteristic odour
Odour threshold:	No data available
Colour:	Variable in colour, depending on the composition
Particle size:	No data available
Explosion limits:	No data available
Flammability:	Extremely flammable aerosol
Log Kow:	Not applicable (mixture)
Dynamic viscosity:	No data available
Kinematic viscosity:	No data available
Melting point:	No data available
Boiling point:	No data available
Flash point:	No data available
Evaporation rate:	No data available
Relative vapour density:	1.1
Vapour pressure:	No data available
Solubility:	water ; insoluble
Relative density:	1.1 ; 20 °C
Decomposition temperature:	No data available
Auto-ignition temperature:	No data available
Explosive properties:	No chemical group associated with explosive properties
Oxidising properties:	No chemical group associated with oxidising properties
pH	No data available

9.2. Other information

Absolute density: 1100 kg/m³ ; 20 °C

Section 10: Stability and reactivity

10.1. Reactivity

May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Use spark-/explosionproof appliances and lighting system. Keep away from naked flames/heat. Keep away from ignition sources/sparks.

10.5. Incompatible materials

No data available.

10.6. Hazardous decomposition products

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, phosphorus oxides, hydrogen bromide, hydrogen chloride, hydrofluoric acid) (carbon monoxide - carbon dioxide).

Section 11: Toxicological information

11.1. Information on toxicological effects

11.1.1. Test results

Acute toxicity

Soudafoam FR

No (test)data on the mixture available

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		> 10000 mg/kg		Rat	Literature study	
Dermal	LD50		> 5000 mg/kg		Rabbit	Literature study	
Inhalation (vapours)	LD50		10 mg/l - 20 mg/l	4 h	Rat	Literature study	
Inhalation			category 4			Literature study	

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	EU Method B.1 tris	632 mg/kg bw		Rat (female)	Experimental value	
Dermal	LD50	OECD 402	> 2000 mg/kg bw	24 h	Rat (male/ female)	Experimental value	
Inhalation (aerosol)	LD50	OECD 403	> 7 mg/l	4 h	Rat (male/ female)	Experimental value	

triethyl phosphate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50		1600 mg/kg		Rat	Inconclusive, insufficient data	
Oral	LD50		1370 mg/kg bw		Mouse	Experimental value	
Dermal	LD50		> 20000 mg/kg bw		Rabbit	Inconclusive, insufficient data	
Inhalation (aerosol)	LD50	OECD 403	> 8.817 mg/l air	4 h	Rat (male/ female)	Experimental value	

Classification is based on the relevant ingredients

Conclusion

Harmful if inhaled.

Not classified as acute toxic in contact with skin

Not classified as acute toxic if swallowed

Corrosion/irritation

11.1.1. Test results (continued)

Soudafoam FR

No (test)data on the mixture available

polymethylene polyphenyl isocyanate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Irritating; category 2					Literature study	
Skin	Irritating; category 2					Literature study	
Inhalation	Irritating; STOT SE cat.3					Literature study	

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	7 days	Rabbit	Experimental value	
Skin	Not irritating	OECD 404	4 h	7 days	Rabbit	Experimental value	

triethyl phosphate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Moderately irritating	OECD 405	24 h		Rabbit	Experimental value	
Skin	Not irritating	OECD 404	4 h	1; 24; 48; 72; 168 hours	Rabbit	Experimental value	

Classification is based on the relevant ingredients

Conclusion

Causes skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

Specific target organ toxicity, single exposure: classified as irritant to respiratory organs

Respiratory or skin sensitisation

11.1.1. Test results (continued)

Soudafoam FR

No (test)data on the mixture available

polymethylene polyphenyl isocyanate

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing; category 1					Literature study	
Inhalation	Sensitizing; category 1					Literature study	

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 429	24 h	7 days	Mouse (female)	Experimental value	

triethyl phosphate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 429	24 h		Mouse (female)	Experimental value	
Inhalation						Data waiving	

Classification is based on the relevant ingredients

Conclusion

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Specific target organ toxicity

11.1.1. Test results (continued)

Soudafoam FR

No (test)data on the mixture available

polymethylene polyphenyl isocyanate

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Inhalation	Sensitizing; category 1		STOT RE cat.2			Literature study		Literature study

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (diet)	NOAEL	Subchronic toxicity test	171 mg/kg bw/day		No effect	13 weeks (daily)	Rat (female)	Experimental value
Oral (diet)	LOAEL	Subchronic toxicity test	52 mg/kg bw/day	Liver	Weight gain	13 weeks (daily)	Rat (male)	Experimental value
Inhalation (vapours)	Dose level		0.586 mg/l air		No effect		Mouse (male)	Experimental value

triethyl phosphate

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral (stomach tube)	NOAEL	OECD 407	1000 mg/kg bw/day		No effect	4 weeks (daily)	Rat (male/female)	Experimental value
Dermal								Data waiving
Inhalation (aerosol)	NOAEC	Subchronic toxicity test	366 mg/m³ air		No effect	12 weeks (6h/day, 5 days/week)	Rat (male)	Inconclusive, insufficient data

Classification is based on the relevant ingredients

Conclusion

May cause damage to organs through prolonged or repeated exposure if inhaled.

Not classified as sub-chronically toxic in contact with skin

Not classified as sub-chronically toxic if swallowed

Mutagenicity (in vitro)

Soudafoam FR

No (test)data on the mixture available

11.1.1. Test results (continued)

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Result	Method	Test substrate	Effect	Value determination
Negative with metabolic activation, negative without metabolic activation	OECD 482	Rat liver cells		Experimental value
Negative without metabolic activation, positive with metabolic activation	OECD 476		Mouse (lymphoma L5178Y cells)	Experimental value

triethyl phosphate

Result	Method	Test substrate	Effect	Value determination
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster lung fibroblasts	No effect	Experimental value
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value

Mutagenicity (in vivo)

Soudafoam FR

No (test)data on the mixture available

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative	OECD 474		Mouse (male/ female)	Bone marrow	Experimental value

triethyl phosphate

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative			Mouse (male)	Bone marrow	

Carcinogenicity

Soudafoam FR

No (test)data on the mixture available

polymethylene polyphenyl isocyanate

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Route of exposure	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Inhalation								Data waiving
Dermal								Data waiving
Oral								Data waiving

Reproductive toxicity

11.1.1. Test results (continued)

Soudafoam FR

No (test)data on the mixture available

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity	LOAEL	OECD 416	99 mg/kg bw/day		Rat (female)	Embryotoxicity		Experimental value
Effects on fertility	LOAEL	OECD 416	99 mg/kg bw/day		Rat (male/ female)	Weight changes	Female reproductive organ	Experimental value

triethyl phosphate

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity	NOAEL	OECD 414	625 mg/kg bw/day	10 day(s)	Rat	No effect	Foetus	Experimental value
Maternal toxicity	NOAEL	OECD 414	125 mg/kg bw/day	10 day(s)	Rat	No effect		Experimental value
Effects on fertility	NOEL		335 mg/kg bw/day	120 day(s) - 150 day(s)	Rat (male/ female)	No effect		Inconclusive, insufficient data

Classification is based on the relevant ingredients

Conclusion CMR

Suspected of causing cancer.

Not classified for mutagenic or genotoxic toxicity

Not classified for reprotoxic or developmental toxicity

Toxicity other effects

Soudafoam FR

No (test)data on the mixture available

Chronic effects from short and long-term exposure

Soudafoam FR

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Feeling of weakness. Itching. Skin rash/inflammation. May stain the skin. Dry skin. Coughing. Possible inflammation of the respiratory tract. Respiratory difficulties.

Section 12: Ecological information

12.1. Toxicity

Soudafoam FR

No (test)data on the mixture available

polymethylene polyphenyl isocyanate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity other aquatic organisms	LC50	OECD 416	> 1000 mg/l	96 h				Literature study
Toxicity aquatic microorganisms	EC50	OECD 209	> 100 mg/l		Activated sludge		Female reproductive organ	Literature study

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	Other	56.2 mg/l	96 h	Brachydanio rerio	Static system	Fresh water	Experimental value; GLP
Acute toxicity invertebrates	LC50		131 mg/l	48 h	Daphnia magna	Static system	Fresh water	Locomotor effect
Toxicity algae and other aquatic plants	ErC50	OECD 201	82 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; GLP
Long-term toxicity aquatic invertebrates	NOEC	OECD 202	32 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; GLP
Toxicity aquatic microorganisms	EC50	ISO 8192	784 mg/l	3 h	Activated sludge	Static system	Fresh water	Experimental value; GLP

triethyl phosphate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	Equivalent to OECD 203	> 100 mg/l	96 h	Danio rerio		Fresh water	Experimental value; Nominal concentration
Acute toxicity invertebrates	EC50	OECD 202	2705 mg/l	24 h	Daphnia magna		Fresh water	Experimental value; Nominal concentration
Toxicity algae and other aquatic plants	EC50	Other	901 mg/l	72 h	Scenedesmus subspicatus	Static system	Fresh water	Experimental value; Nominal concentration
Long-term toxicity aquatic invertebrates	NOEC	Equivalent to OECD 211	31.6 mg/l	21 day(s)	Daphnia magna		Fresh water	Experimental value; Nominal concentration

Judgement of the mixture is based on the relevant ingredients

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

polymethylene polyphenyl isocyanate

Biodegradation water

Method	Value	Duration	Value determination
OECD 302C: Inherent Biodegradability: Modified MITI Test (II)	< 60 %		Experimental value

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

Biodegradation water

Method	Value	Duration	Value determination
OECD 301E: Modified OECD Screening Test	14 %; GLP	28 day(s)	OECD 301E: Modified OECD Screening Test 14 %; GLP 28 day(s) Experimental value

triethyl phosphate

Biodegradation water

Method	Value	Duration	Value determination
OECD 301C: Modified MITI Test (I)	0 %	28 day(s)	Experimental value
OECD 302B: Inherent Biodegradability: Zahn-Wellens/EMPA Test	97 %	28 day(s)	Experimental value

Conclusion

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

Soudafoam FR

Log Kow				
Method	**Remark**	**Value**	**Temperature**	**Value determination**
	Not applicable (mixture)			

polymethylene polyphenyl isocyanate

BCF fishes					
Parameter	**Method**	**Value**	**Duration**	**Species**	**Value determination**
BCF		1		Pisces	Literature study

Log Kow				
Method	**Remark**	**Value**	**Temperature**	**Value determination**
	No data available			

12.3. Bioaccumulative potential (continued)

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	OECD 305	0.8 - 14	6 week(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
EU Method A.8		2.68	30 °C	Experimental value

triethyl phosphate

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	OECD 305	0.5 - 1.3	6 week(s)	Cyprinus carpio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
EU Method A.8		1.11		Experimental value

Conclusion

Does not contain bioaccumulative component(s)

12.4. Mobility in soil

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

(log) Koc

Parameter	Method	Value	Value determination
log Koc	EU Method C.19	2.76	Experimental value

Volatility (Henry's Law constant H)

Value	Method	Temperature	Remark	Value determination
0.00042 Pa.m³/mol		25 °C		Read-across

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Mackay level I	0.01 %	0 %	3.55 %	3.52 %	92.89 %	Read-across

Conclusion

Contains component(s) with potential for mobility in the soil

12.5. Results of PBT and vPvB assessment

Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006.

12.6. Other adverse effects

Soudafoam FR

Fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Contains component(s) included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

Section 13: Disposal considerations

13.1. Waste treatment methods

13.1.1. Provisions relating to waste

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014.

Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).

08 05 01* (wastes not otherwise specified in 08: waste isocyanates).

16 05 04* (gases in pressure containers and discarded chemicals: gases in pressure containers (including halons) containing hazardous substances).

Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2. Disposal methods

Recycle/reuse. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste.

Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the

waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Specific treatment. Do not discharge into drains or the environment.

13.1.2. Packaging/Container

Waste material code packaging (Directive 2008/98/EC).

15 01 10* (packaging containing residues of or contaminated by dangerous substances).

Section 14: Transport information

Road (ADR)

14.1. UN number

UN number: 1950

14.2. UN proper shipping name

Proper shipping name: Aerosols

14.3. Transport hazard class(es)

Hazard identification number:
Class: 2
Classification code: 5F

14.4. Packing group

Packing group: Not applicable
Labels: 2.1

14.5. Environmental hazards

Environmentally hazardous substance mark: No

14.6. Special precautions for user

Special provisions: 190
Special provisions: 327
Special provisions: 344
Special provisions: 625
Limited quantities: Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Rail (RID)

14.1. UN number

UN number: 1950

14.2. UN proper shipping name

Proper shipping name: Aerosols

14.3. Transport hazard class(es)

Hazard identification number: 23
Class: 2
Classification code: 5F

14.4. Packing group

Packing group:
Labels: 2.1

14.5. Environmental hazards

Environmentally hazardous substance mark: No

Rail (RID) continued

14.6. Special precautions for user

Special provisions: 190
Special provisions: 327
Special provisions: 344
Special provisions: 625
Limited quantities: Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Inland waterways (ADN)

14.1. UN number

UN number: 1950

14.2. UN proper shipping name

Proper shipping name: Aerosols

14.3. Transport hazard class(es)

Class: 2
Classification code: 5F

14.4. Packing group

Packing group:
Labels: 2.1

14.5. Environmental hazards

Environmentally hazardous substance mark: No

14.6. Special precautions for user

Special provisions: 190
Special provisions: 327
Special provisions: 344
Special provisions: 625
Limited quantities: Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Sea (IMDG/IMSBC)

14.1. UN number

UN number: 1950

14.2. UN proper shipping name

Proper shipping name: Aerosols

14.3. Transport hazard class(es)

Class: 2.1

Sea (IMDG/IMSBC) continued

14.4. Packing group

Packing group:

Labels: 2.1

14.5. Environmental hazards

Marine pollutant: -

Environmentally hazardous substance mark: No

14.6. Special precautions for user

Special provisions: 63

Special provisions: 190

Special provisions: 277

Special provisions: 327

Special provisions: 344

Special provisions: 959

Limited quantities: Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

14.5. Transport in bulk according to Annex II of Marpol and the IBC Code

Annex II of MARPOL 73/78: Not applicable

Air (ICAO-TI/IATA-DGR)

14.1. UN number

UN number: 1950

14.2. UN proper shipping name

Proper shipping name: Aerosols, flammable

14.3. Transport hazard class(es)

Class: 2.1

14.4. Packing group

Packing group:

Labels: 2.1

14.5. Environmental hazards

Environmentally hazardous substance mark: No

14.6. Special precautions for user

Special provisions: A145

Special provisions: A167

Special provisions: A802

Passenger and cargo transport: limited quantities: maximum net quantity per packaging: 30 kg G

Section 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
18 %	
198 g/l	

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

· polymethylene polyphenyl isocyanate · reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2- chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester · triethyl phosphate	Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, tricks and jokes,games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: can be used as fuel in decorative oil lamps for supply to the general public, and, present an aspiration hazard and are labelled with R65 or H304,4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.’

Section 15: Regulatory information

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

National legislation Belgium

Soudafoam FR

No data available

National legislation The Netherlands

Soudafoam FR

Waste identification (the Netherlands)	LWCA (the Netherlands): KGA category 06
Waterbezwaarlijkheid	9

National legislation France

Soudafoam FR

No data available

National legislation Germany

Soudafoam FR

WGK	1; Classification water polluting based on the components in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 4)

polymethylene polyphenyl isocyanate

TRGS905 - Krebserzeugend	3
TRGS905 - Erbgutverändernd	-
TRGS905 - Fruchtbarkeitsgefährdend	-
TRGS905 - Fruchtschädigend	-
TA-Luft	5.2.5; I
TRGS900 - Risiko der Fruchtschädigung	Y; Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes nicht befürchtet zu werden
Sensibilisierende Stoffe	Sa; Atemwegssensibilisierende Stoffe
Hautresorptive Stoffe	H; Hautresorptiv

reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester

TA-Luft	5.2.5

triethyl phosphate

TA-Luft	5.2.5

National legislation United Kingdom

Soudafoam FR

No data available

polymethylene polyphenyl isocyanate

Skin Sensitisation	Sen
Respiratory sensitisation	Sen

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

Other relevant data

Soudafoam FR

No data available

polymethylene polyphenyl isocyanate

IARC - classification	3; Polymethylene polyphenyl isocyanate

15.2. Chemical safety assessment

No chemical safety assessment is required.

Section 16: Other information

Full text of any H-statements referred to under headings 2 and 3:

H220 Extremely flammable gas.
H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H280 Contains gas under pressure; may explode if heated.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

(*) = INTERNAL CLASSIFICATION BY BIG

PBT-substances = persistent, bioaccumulative and toxic substances

CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)
Extremely flammable aerosol.

Specific concentration limits CLP

polymethylene polyphenyl isocyanate	C ≥ 5 %	Eye Irrit 2;H319	analogous to Annex VI
	C ≥ 5 %	Skin Irrit 2;H315	analogous to Annex VI
	C ≥ 0.1 %	Resp Sens 1;H334	analogous to Annex VI
	C ≥ 5 %	STOT SE 3;H335	analogous to Annex VI

Section 16: Other information (continued)

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.