

SAFETY DATA SHEET

Based on Directive 2001/58/EC of the Commission of the European Communities

Soudafoam Gun Low Expansion

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

- Not applicable

1.2 Use of the substance or the preparation:

- Polyurethane foam

1.3 Company/undertaking identification:

SOUDAL N.V.
Everdongenlaan 18-20
B-2300 Turnhout
Tel. : +32 14 42 42 31
Fax : +32 14 44 39 71

1.4 Telephone number for emergency:

+32 14 58 45 45
Brandweerinformatiecentrum voor gevaarlijke stoffen (B.I.G.)
Technische Schoolstraat 43 A, B-2440 Geel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
tris(2-chloro-1-methylethyl)phosphate	13674-84-5 237-158-7	< 25	-	52/53 (1)
polymethylenepolyphenylisocyanate	9016-87-9 -	> 25	Xn	20-36/37/38-42/43 (1)
norfluran	811-97-2 212-377-0	1 - 10	-	- (1)
isobutane	75-28-5 200-857-2	1 - 5	F+	12 (1)
dimethyl ether	115-10-6 204-065-8	5 - 10	F+	12 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- Extremely flammable
- Harmful by inhalation
- Irritating to eyes, respiratory system and skin
- May cause sensitization by inhalation and skin contact

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Compiled by : Brandweerinformatiecentrum voor Gevaarlijke Stoffen vzw (BIG)
Technische Schoolstraat 43 A, B-2440 Geel
☎ +32 14 58 45 47 http://www.big.be E-mail: info@big.be

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Reference number : BIG\37027GB Revision number : 001
Reason for revision : Directive 2001/58/EC

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4. First aid measures

- 4.1 Eye contact:**
- Rinse immediately with plenty of water
 - Seek medical advice
- 4.2 Skin contact:**
- Rinse immediately with plenty of water
 - If irritation persists: seek medical advice
- 4.3 After inhalation:**
- Remove the victim into fresh air
 - Seek medical advice
- 4.4 After ingestion:**
- Never give water to an unconscious person
 - Do not induce vomiting
 - Seek medical advice

5. Fire-fighting measures

- 5.1 Suitable extinguishing media:**
- Water spray
 - Polyvalent foam
 - BC powder
 - Carbon dioxide
- 5.2 Unsuitable extinguishing media:**
- None
- 5.3 Special exposure hazards:**
- On burning: release of toxic and corrosive gases/vapours: phosphorus oxides, nitrous vapours, hydrogen chloride, hydrogen fluoride, carbon monoxide and carbon dioxide
 - Gas/vapour spreads at floor level: ignition hazard
 - Gas/vapour flammable with air within explosion limits
 - Aerosol may explode under the effect of heat
- 5.4 Instructions:**
- Dilute toxic gases with water spray
 - Take account of toxic firefighting water
 - Use firefighting water moderately and contain it
 - Do not move the load if exposed to heat
- 5.5 Special protective equipment for firefighters:**
- Heat/fire exposure: compressed air/oxygen apparatus
 - Protective clothing for exposure to chemicals

6. Accidental release measures

- 6.1 Personal protection/precautions:**
- See headings 8.1/8.3/10.3
- 6.2 Environmental precautions:**
- Use appropriate containment to avoid environmental contamination
- 6.3 Methods of cleaning up:**
- Allow product to solidify and remove it by mechanical means
 - Remove uncured foam with acetone

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7. Handling and storage

7.1 Handling:

- Observe very strict hygiene - avoid contact
- In case of insufficient ventilation: keep naked flames/sparks away
- Remove contaminated clothing immediately
- Clean contaminated clothing

7.2 Storage:

- Keep out of direct sunlight
- Store in a cool area

- Keep away from: heat sources, ignition sources, acids, bases, water/moist

Storage temperature	: < 50	°C
Quantity limit	: N.D.	kg
Storage life	: 365	days
Materials for packaging	:	
- suitable	: aerosol dispenser	

7.3 Specific uses:

- See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

POLYMETHYLENEPOLYPHENYLISOCYANATE:

TLV-TWA	: -	mg/m ³	-	ppm
TLV-STEL	: -	mg/m ³	-	ppm
TLV-Ceiling	: -	mg/m ³	-	ppm
MEL-LTEL	: 0.02 (-NCO)	mg/m ³	-	ppm
MEL-STEL	: 0.07 (-NCO)	mg/m ³	-	ppm
MAK	: -	mg/m ³	-	ppm
TRK	: -	mg/m ³	-	ppm
MAC-TGG 8 h	: -	mg/m ³		
MAC-TGG 15 min.	: -	mg/m ³		
MAC-Ceiling	: -	mg/m ³		
VME-8 h	: -	mg/m ³	-	ppm
VLE-15 min.	: -	mg/m ³	-	ppm
GWBB-8 h	: -	mg/m ³	-	ppm
GWK-15 min.	: -	mg/m ³	-	ppm
Momentary value	: -	mg/m ³	-	ppm
EC	: -	mg/m ³	-	ppm
EC-STEL	: -	mg/m ³	-	ppm

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NORFLURAN:

TLV-TWA	: -	mg/m ³	-	ppm
TLV-STEL	: -	mg/m ³	-	ppm
TLV-Ceiling	: -	mg/m ³	-	ppm
OES-LTEL	: 4240	mg/m ³	1000	ppm
OES-STEL	: -	mg/m ³	-	ppm
MAK	: 4200	mg/m ³	1000	ppm
TRK	: -	mg/m ³	-	ppm
MAC-TGG 8 h	: 4200	mg/m ³		
MAC-TGG 15 min.	: -	mg/m ³		
MAC-Ceiling	: -	mg/m ³		
VME-8 h	: -	mg/m ³	-	ppm
VLE-15 min.	: -	mg/m ³	-	ppm
GWBB-8 h	: -	mg/m ³	-	ppm
GWK-15 min.	: -	mg/m ³	-	ppm
Momentary value	: -	mg/m ³	-	ppm
EC	: -	mg/m ³	-	ppm
EC-STEL	: -	mg/m ³	-	ppm

ISOBUTANE:

TLV-TWA	: -	mg/m ³	-	ppm
TLV-STEL	: -	mg/m ³	-	ppm
TLV-Ceiling	: -	mg/m ³	-	ppm
OES-LTEL	: -	mg/m ³	-	ppm
OES-STEL	: -	mg/m ³	-	ppm
MAK	: 2400	mg/m ³	1000	ppm
TRK	: -	mg/m ³	-	ppm
MAC-TGG 8 h	: -	mg/m ³		
MAC-TGG 15 min.	: -	mg/m ³		
MAC-Ceiling	: -	mg/m ³		
VME-8 h	: -	mg/m ³	-	ppm
VLE-15 min.	: -	mg/m ³	-	ppm
GWBB-8 h	: -	mg/m ³	-	ppm
GWK-15 min.	: -	mg/m ³	-	ppm
Momentary value	: -	mg/m ³	-	ppm
EC	: -	mg/m ³	-	ppm
EC-STEL	: -	mg/m ³	-	ppm

DIMETHYL ETHER:

TLV-TWA	: -	mg/m ³	-	ppm
TLV-STEL	: -	mg/m ³	-	ppm
TLV-Ceiling	: -	mg/m ³	-	ppm
OES-LTEL	: -	mg/m ³	400	ppm
OES-STEL	: -	mg/m ³	500	ppm
MAK	: 1900	mg/m ³	1000	ppm
TRK	: -	mg/m ³	-	ppm
MAC-TGG 8 h	: 950	mg/m ³		
MAC-TGG 15 min.	: 1500	mg/m ³		
MAC-Ceiling	: -	mg/m ³		
VME-8 h	: -	mg/m ³	-	ppm
VLE-15 min.	: -	mg/m ³	-	ppm
GWBB-8 h	: -	mg/m ³	-	ppm
GWK-15 min.	: -	mg/m ³	-	ppm
Momentary value	: -	mg/m ³	-	ppm
EC	: 1920	mg/m ³	1000	ppm

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EC-STEL

mg/m³

ppm

8.2 Exposure controls:

8.2.1 Occupational exposure controls:

- Use only in well ventilated area

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:

- In case of insufficient ventilation: respiratory protection with filter type A

8.3.2 hand protection:

- Chemically resistant gloves

8.3.3 eye protection:

- Safety glasses

8.3.4 skin protection:

- Suitable protective clothing

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	: Aerosol
Odour	: Characteristic
Colour	: Variable in colour

9.2 Important health, safety and environmental information:

pH value	: N.D.	
Boiling point/boiling range	: N.D.	°C
Flashpoint	: Contains extremely flammable components	
Explosion limits	: N.D.	Vol%
Vapour pressure (at 20°C)	: N.D.	hPa
Vapour pressure (at 50°C)	: N.D.	hPa
Relative density (at 20°C)	: N.D.	
Water solubility	: N.D.	g/100 ml
Soluble in	: N.D.	
Relative vapour density	: N.D.	
Viscosity (at 20°C)	: N.D.	Pa.s
Partition coefficient n-octanol/water	: N.D.	
Evaporation rate		
ratio to butyl acetate	: N.D.	
ratio to ether	: N.D.	

9.3 Other information:

Melting point/melting range	: N.D.	°C
Auto-ignition point	: N.D.	°C
Saturation concentration	: N.D.	g/m ³

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:

- Unstable on exposure to heat

10.2 Materials to avoid:

- Keep away from: heat sources, ignition sources, acids, bases, water/moist

10.3 Hazardous decomposition products:

- On burning: release of toxic and corrosive gases/vapours: phosphorus oxides, nitrous vapours, hydrogen chloride, hydrogen fluoride, carbon monoxide and carbon dioxide
- On heating: release of toxic/combustible gases/vapours (hydrogen cyanide)
- May polymerize on exposure to temperature rise

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- May polymerize with vele compounds, o.a.: (strong) bases and amines
- Reacts violently with (some) acids/bases

11. Toxicological information

11.1 Acute toxicity:

tris(2-CHLORINE-1-METHYLETHYL)PHOSPHATE:

LD50 oral rat	: 3600	mg/kg
LD50 dermal rabbit	: > 2000	mg/kg
LD50 dermal rabbit	: > 2000	mg/kg
LC50 inhalation rat	: > 5	mg/l/4 h
LC50 inhalation rat	: N.D.	ppm/4 h

POLYMETHYLENENPOLYPHENYLISOCYANATE:

LD50 oral rat	: > 10000	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LD50 dermal rabbit	: > 5000	mg/kg
LC50 inhalation rat	: N.D.	mg/l/4 h
LC50 inhalation rat	: N.D.	ppm/4 h

NORFLURAN:

LD50 oral rat	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LC50 inhalation rat	: > 2000	mg/l/4 h
LC50 inhalation rat	: > 500000	ppm/4 h

ISOBUTANE:

LD50 oral rat	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LC50 inhalation rat	: 658	mg/l/4 h
LC50 inhalation rat	: N.D.	ppm/4 h

11.2 Chronic toxicity:

POLYMETHYLENENPOLYPHENYLISOCYANATE:

EC carc. cat.	: not listed
EC muta. cat.	: not listed
EC repr. cat.	: not listed
Carcinogenicity (TLV)	: not listed
Carcinogenicity (MAC)	: not listed
Carcinogenicity (VME)	: not listed
Carcinogenicity (GWBB)	: not listed
Carcinogenicity (MAK)	: category 3B
Mutagenicity (MAK)	: not listed
Teratogenicity (MAK)	: Group -
IARC classification	: 3

NORFLURAN:

EC carc. cat.	: not listed
EC muta. cat.	: not listed
EC repr. cat.	: not listed
Carcinogenicity (TLV)	: not listed
Carcinogenicity (MAC)	: not listed
Carcinogenicity (VME)	: not listed
Carcinogenicity (GWBB)	: not listed
Carcinogenicity (MAK)	: not listed
Mutagenicity (MAK)	: not listed
Teratogenicity (MAK)	: Group C

DIMETHYL ETHER:

EC carc. cat. : not listed
EC muta. cat. : not listed
EC repr. cat. : not listed

Carcinogenicity (TLV) : not listed
Carcinogenicity (MAC) : not listed
Carcinogenicity (VME) : not listed
Carcinogenicity (GWBB) : not listed

Carcinogenicity (MAK) : not listed
Mutagenicity (MAK) : not listed
Teratogenicity (MAK) : Group D

IARC classification : not listed

11.3 Routes of exposure: inhalation, eyes and skin

11.4 Acute effects/symptoms (upon overexposure) :

AFTER INHALATION:

- Dry/sore throat
- Coughing
- Irritation of the respiratory tract
- Irritation of the nasal mucous membranes
- Runny nose

FOLLOWING SYMPTOMS MAY APPEAR LATER:

- 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

11.5 Chronic effects:

- May cause sensitization by skin contact
- May cause sensitization by inhalation
- Contains substance of group C (MAK-Schwangerschaftsgruppe (norfluran))
- Contains substance with uncertain carcinogenic properties (polymethylenepolyphenylisocyanate)

ON CONTINUOUS EXPOSURE/CONTACT:

- Body temperature rise
- Tremor
- Feeling of weakness
- Headache
- Skin rash/inflammation
- May stain the skin
- Dry skin
- Risk of pneumonia

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12. Ecological information

12.1 Ecotoxicity:

tris(2-CHLORINE-1-METHYLETHYL)PHOSPHATE:

- LC50 (96 h) : 56.2 mg/l (BRACHYDANIO RERIO)
- EC50 (48 h) : 65/335 mg/l (DAPHNIA MAGNA)
- EC50 (96 h) : 57/97 mg/l (SELENASTRUM CAPRICORNUTUM)

12.2 Mobility:

- Volatile organic compounds (VOC): 17 %

For other physicochemical properties see section 9

12.3 Persistence and degradability:

- Biodegradation BOD₅ : N.D. % ThOD
- Water : No data available
- soil : T ½ N.D. days

12.4 Bioaccumulative potential:

- log P_{ow} : N.D.
- BCF : N.D.

12.5 Other adverse effects:

- WGK : - (classification in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- Effect on the ozone layer : Not dangerous for the ozone layer (1999/45/EC)
- Greenhouse effect : No data available
- Effect on waste water purification : No data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 08 05 01 (waste isocyanates)
- Waste material code (Flanders): 015; 651
- Hazardous waste (91/689/EEC)

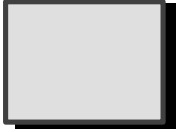
13.2 Disposal methods:

- Specific treatment
- Contains a component for which a prohibition exists against discharge into surface water

13.3 Packaging:

- Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations
UN number : 1950
CLASS : 2.2
SUB RISKS : -
PACKING : -
PROPER SHIPPING NAME : UN 1950, Aerosols

14.2 ADR (transport by road)
CLASS : 2
CLASSIFICATION CODE : 5 A
DANGER LABEL TANKS : -
DANGER LABEL PACKAGES : 2.2

14.3 RID (transport by rail)
CLASS : 2
CLASSIFICATION CODE : 5 A
DANGER LABEL TANKS : -
DANGER LABEL PACKAGES : 2.2

14.4 ADNR (transport by inland waterways)
CLASS : 2
CLASSIFICATION CODE : 5 A
DANGER LABEL TANKS : -
DANGER LABEL PACKAGES : 2.2

14.5 IMDG (maritime transport)
CLASS : 2.2
SUB RISKS : -
PACKING : -
MFAG : -
EMS : 2-13
Marine pollutant : -

14.6 ICAO (air transport)
CLASS : 2.2
SUB RISKS : -
PACKING : -
PACKING INSTRUCTIONS PASSENGER AIRCRAFT : 203/Y203
PACKING INSTRUCTIONS CARGO AIRCRAFT : 203

14.7 Special precautions in connection with transport : None

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 1950'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

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15. Regulatory information

Labelling in accordance with EC directives 67/548/EEC and 1999/45/EC (**:see heading 16)



Extremely flammable



Harmful

Contains : polymethylenepolyphenylisocyanate
R20 : Harmful by inhalation
R36/37/38 : Irritating to eyes, respiratory system and skin
R42/43 : May cause sensitization by inhalation and skin contact

S23 : Do not breathe spray
S36/37/39 : Wear suitable protective clothing gloves, and eye/face protection
S51 : Use only in well ventilated area
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)

Keep away from sources of ignition - No smoking
Keep out of reach of children
Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C
Do not pierce or burn after use
Do not spray on a naked flame or any incandescent material

Contains isocyanates. See information supplied by the manufacturer

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16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = Internal classification

(**) Labelling:

The labelling of the substance described in this MSDS complies with the provisions of Directive 1999/45/EC of 31 May 1999, published in the Official Journal of the European Communities L 200 of 30/07/1999. This Directive replaces Directive 88/379/EEC of 7 June 1988, published in the Official Journal of the European Communities L 187 of 16/07/1988.

Member States shall apply the laws, regulations and administrative provisions referred to in article 22 of this Directive:

- (a) to preparations not within the scope of Directive 91/414/EEC or Directive 98/8/EC as from 30 July 2002; and
(b) to preparations within the scope of Directive 91/414/EEC or Directive 98/8/EC as from 30 July 2004.

Full text of any R-phrases referred to under heading 2:

R12 : Extremely flammable
R20 : Harmful by inhalation
R36/37/38 : Irritating to eyes, respiratory system and skin
R42/43 : May cause sensitization by inhalation and skin contact
R52/53 : Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment

Exposure limits:

TLV : Threshold Limit Value - ACGIH US 2002
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - the Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 2002
GWK : Grenswaarde kortstondige blootstelling - Belgium 2002
EC : Indicative occupational exposure limit values - directive 2000/39/EC

I : Inhalable fraction = **T** : Total dust = **E** : Einatembarer Aerosolanteil
R : Respirable fraction = **A** : Alveolengängiger Aerosolanteil/Alveolar dust
C : Ceiling limit

a:	aerosol		r:	rook/Rauch	(fume)
d:	damp	(vapour)	st:	stof/Staub	(dust)
du:	dust		ve:	vezel	(fibre)
fa:	Faser	(fibre)	va:	vapour	
fi:	fibre		om:	oil mist	
fu:	fume		on:	olienevel/Ölnebel	(oil mist)
p:	poussière	(dust)	part:	particles	

Chronic toxicity:

K : List of the carcinogenic substances and processes - The Netherlands 2002