MATERIAL SAFETY DATA SHEET

AIRVIK-9

Strong tack aerosol adhesive for multipurpose temporary positioning of layers

► SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Name of product:	AIRVIK-9
Article:	Aerosol adhesive
Company name:	«VIK-COMPOSITE» GmbH
Street/POB No.:	Carl-Zeiss-Str. 11
State/city/postal code:	DE Waldstetten 73550
Telephone:	+49 07171 2923
Telefax:	+49 07171 2924
E-mail:	sales@vik-composite.com
Description:	Adhesive for composite materials
Size:	500 ml

► SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830.
Any additional information concerning the risks for health and/or environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Aerosol, category 1	H222	Extremely flammable aerosol
	H229	Pressurized container: may burst if heated
Aspiration hazard, category 1	H304	May be fatal if swallowed and enters airways
Eye irritation, category 2	H319	Causes serious eye irritation
Skin irritation, category 2	H315	Causes skin irritation
Specific target organ toxicity - single exposure, category 3	H336	May cause drowsiness and dizziness
Hazardous to aquatic environment, chronic toxicity, category 2	H411	Toxic to aquatic life with long lasting effects

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal word: DANGER

Hazard statements:

H222	Extremely flammable aerosol
H229	Pressurised container: May burst if heated
H319	Causes serious eye irritation
H315	Causes skin irritation
H336	May cause drowsiness and dizziness
H411	Toxic to aquatic life with long lasting effects

Precautionary statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251	Do not pierce or burn, even after use.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
P211	Do not spray on an open flame or other ignition source
P273	Avoid release to the environment.
P391	Collect spillage.

Contains: HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
ACETONE

Statements on the aspiration toxicity classification were not included in the label elements, based on section 1.3.3. of Annex I to CLP.

2.3 Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

► SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.2. Mixture

Contains :

Identification : **x = Conc.%** **Classification 1272/2008 (CLP)**

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

CAS	*64742-49-0*	*15 ≤ x < 30*	**Flam. Liq. 2 H225, Asp.Tox. 1 H304, Skin Irrit. 2 H315, STOT SE 3 H336, Aquatic chronic 2 H411, Classification note according to Annex VI to the CLP Regulation: P**
EC	*931-254-9*		
INDEX			
Reg. No.	*01-2119484651-34-XXXX*		

PROPANE

CAS	*74-98-6*	15 ≤ x < 30	**Flam. Gas 1A H220, Press. Gas (Liq.) H280, Classification note according to Annex VI to the CLP Regulation: U**
EC	*200-827-9*		
INDEX	*601-003-00-5*		
Reg. No.	*01-2119486944-21-XXXX*		

ACETONE

CAS	*67-64-1*	5 ≤ x < 15	**Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066**
EC	*200-662-2*		
INDEX	*606-001-00-8*		
Reg. No.	*01-2119471330-49-XXXX*		

ISO-BUTANE

CAS	*75-28-5*	1 ≤ x < 5	**Flam. Gas 1A H220, Press. Gas (Liq.) H280, Classification note according to Annex VI to the CLP Regulation: C U**
EC	*200-857-2*		
INDEX	*601-004-00-0*		
Reg. No.	*01-2119485395-27-XXXX*		

N-BUTANE

CAS	*106-97-8*	1 ≤ x < 5	**Flam. Gas 1A H220, Press. Gas (Liq.) H280, Classification note according to Annex VI to the CLP Regulation: C U**
EC	*203-448-7*		
INDEX	*601-004-00-0*		
Reg. No.	*01-2119474691-32-XXXX*		

ETHANOL

CAS	*64-17-5*	1 ≤ x < 5	**Flam. Liq. 2 H225, Eye Irrit. 2 H319**
EC	*200-578-6*		
INDEX	*603-002-00-5*		
Reg. No.	*01-2119457610-43-XXXX*		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

The product is an aerosol containing propellants. For the purposes of calculation of the health hazards, propellants are not considered (unless they have health hazards). The percentages indicated are inclusive of the propellants.

Percentage of propellants: 29,97%
The LPG used for pressurization is denatured with 0.1% by weight of trans-1,3,3,3-tetrafluoroprop-1-ene CAS 29118-24-9 / EINECS 471-480-0 (global warming potential, GWP <= 1).

► SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

EYES: remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15/30 minutes, opening the eyelids fully. If the problem persists seek medical advice.
SKIN: remove contaminated clothing. Wash with running water. If the problem persists seek medical advice. Wash contaminated clothing before using it again.
INGESTION: immediately call a poison center or doctor. Do not induce vomiting. Rinse mouth with running water if the victim is conscious and collaborative. Do not give anything by mouth to an unconscious person. Do not give anything which is not expressly authorized by a doctor.
INHALATION: remove victim to fresh air. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If the problem persists, get medical advice.

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

No specific information is known about the symptoms and effects caused by the product. See section 11 for effects due to substances

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

Keep the safety data sheet or, failing that, the label available for the medical personnel.

► SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
Water jets.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE.
If overheated, aerosol cans can deform, explode and be propelled at considerable distances. Put a protective helmet on before approaching the fire. Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

► SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Use explosion-proof equipment. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

► SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid bunching of electrostatic charges. Do not spray on flames or incandescent bodies. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Do not eat, drink or smoke during use. Do not breathe spray.

INDUSTRIAL USE
Use with a frequency up to 360 days / year for a time not exceeding 8 hours a day. The temperature in the environment of use must not exceed the ambient temperature by more than 20°C. Provide local exhaust ventilation (LEV) where emissions occur (efficiency: 90%).
PROFESSIONAL USE.
Use with a frequency up to 360 days / year for a time not exceeding 8 hours a day. The ambient temperature of use must not exceed the ambient temperature by more than 20°C. Provide local exhaust ventilation (LEV) where emissions occur (efficiency: 90%).

7.2. Conditions for safe storage, including any incompatibilities

Store in a place where adequate ventilation is ensured, away from direct sunlight at a temperature below 50°C / 122°F, away from any combustion sources.

Storage class TRGS 510 (Germany): 2B

7.3. Specific end use(s)

Follow the instructions on the product labeled or on the information sheet. Refer to the safe use information if enclosed with this safety data sheet.

► SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Regulatory references:

BGR	България	МИНИСТЕРСТВО НА ТРУДА И СОЦИАЛНАТА ПОЛИТИКА МИНИСТЕРСТВО НА ЗДРАВЕОПАЗВАНЕТО НАРЕДБА No 13 от 30 декември 2003 г (4 Септември 2018г)
DEU	Deutschland	TRGS 900 - Seite 1 von 69 (Fassung 29.03.2019) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte
ESP	España	LÍMITES DE EXPOSICIÓN PROFESIONAL PARA AGENTES QUÍMICOS EN ESPAÑA 2019 (INSST)

FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en France. ED 984 - INRS
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Third edition,published 2018)
GRC	Ελλάδα	ΕΦΗΜΕΡΙΔΑ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ - ΤΕΥΧΟΣ ΠΡΩΤΟ Αρ. Φύλλου 152 - 21 Αυγούστου 2018
HRV	Hrvatska	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 91/18)
ITA	Italia	DIRETTIVA (UE) 2017/164 DELLA COMMISSIONE del 31 gennaio 2017
POL	Polska	ROZPORZĄDZENIE MINISTRA RODZINY, PRACY I POLITYKI SPOŁECZNEJ z dnia 12 czerwca 2018 r
PRT	Portugal	Ministério da Economia e do Emprego Consolida as prescrições mínimas em matéria de protecção dos trabalhadores contra os riscos para a segurança e a saúde devido à exposição a agentes químicos no trabalho - Diário da República, 1.ª série - N.º 111 - 11 de junho de 2018
SVN	Slovenija	Uradni list Republike Slovenije 04.12.2018 - Uradnem listu RS št. 78 - PRAVILNIK o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC ; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

Theshhold limit value				
Type	**Country**	**TWA/8h**	**STEL/15 min**	**Remarks/Observations**
		mg/m³ ppm	mg/m³ ppm	
AGW	DEU	1500	3000	
TLV-ACGIH		1441 400		

Health - Derived no-effect level - DNEL / DMEL								
	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				1301 mg/kg bw/d				
Inhalation				1131 mg/m³				5306 mg/m³
Skin				1377 mg/kg bw/d				13964 mg/kg bw/d

PROPANE

Theshhold limit value				
Type	**Country**	**TWA/8h**	**STEL/15 min**	**Remarks/Observations**
		mg/m³ ppm	mg/m³ ppm	
TLV	BGR	1800		
AGW	DEU	1800 1000	7200 4000	
MAK	DEU	1800 1000	7200 4000	
TLV	GRC	1800 1000		
NDS/NDSCh	POL	1800		
MV	SVN	1800 1000		
TLV-ACGIH		1000	400	

ACETONE

Theshhold limit value				
Type	**Country**	**TWA/8h**	**STEL/15 min**	**Remarks/Observations**
		mg/m³ ppm	mg/m³ ppm	
TLV	BGR	600	1400	
AGW	DEU	1200 500	2400 1000	
MAK	DEU	1200 500	2400 1000	
VLA	ESP	1210 500		
VLEP	FRA	1210 500	2420 1000	
WEL	GBR	1210 500	3620 1500	
TLV	GRC	1780	3560	
GVI/KGVI	HRV	1210 500		
VLEP	ITA	1210 500		
NDS/NDSCh	POL	600	1800	
VLE	PRT	1210 500		
MV	SVN	1210 500		
OEL	EU	1210 500		
TLV-ACGIH		1187 500	1781 750	

Predicted no-effect concentration - PNEC		
Normal value in fresh water	10,6	mg/l
Normal value in marine water	1,06	mg/l
Normal value for fresh water sediment	30,4	mg/kg
Normal value for marine water sediment	3,04	mg/kg
Normal value for water, intermittent release	21	mg/l
Normal value of STP microorganisms	100	mg/l
Normal value for the terrestrial compartment	2,95	mg/kg

Health - Derived no-effect level - DNEL / DMEL								
	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				62 mg/kg bw/d				
Inhalation				200 mg/m³		2420 mg/m³		1210 mg/m³
Skin				62 mg/kg bw/d				186 mg/kg bw/d

N-BUTANE

Theshhold limit value				
Type	**Country**	**TWA/8h**	**STEL/15 min**	**Remarks/Observations**
		mg/m³ ppm	mg/m³ ppm	
TLV	BGR	1900		
AGW	DEU	2400 1000	9600 4000	
MAK	DEU	2400 1000	9600 4000	
VLA	ESP	800		
VLEP	FRA	1900 800		
WEL	GBR	1450 600	1810 750	
TLV	GRC	2350 1000		
GVI/KGVI	HRV	1450 600	1810 750	
NDS/NDSCh	POL	1900	3000	
TLV-ACGIH			2377 1000	

ISO-BUTANE

Theshhold limit value				
Type	Country	TWA/8h	STEL/15 min	Remarks/Observations
		mg/m³ ppm	mg/m³ ppm	
TLV	BGR	1900		
AGW	DEU	2400 1000	9600 4000	
MAK	DEU	2400 1000	9600 4000	
VLA	ESP	800		
VLEP	FRA	1900 800		
WEL	GBR	1450 600	1810 750	
TLV	GRC	2350 1000		
GVI/KGVI	HRV	1450 600	1810 750	
NDS/NDSCh	POL	1900	3000	
TLV-ACGIH			2377 1000	

ETHANOL

Theshhold limit value				
Type	Country	TWA/8h	STEL/15 min	Remarks/Observations
		mg/m³ ppm	mg/m³ ppm	
TLV	BGR	1000		
AGW	DEU	380 200	1520 800	
MAK	DEU	380 200	1520 800	
VLA	ESP	1910 1000		
VLEP	FRA	1900 1000	9500 5000	
WEL	GBR	1920 1000		
TLV	GRC	1900 1000		
GVI/KGVI	HRV	1900 1000		
TLV-ACGIH			1884 1000	

Predicted no-effect concentration - PNEC		
Normal value in fresh water	0,96	mg/l
Normal value in marine water	0,79	mg/l
Normal value for fresh water sediment	3,6	mg/kgSS
Normal value for marine water sediment	2,9	mg/kgSS
Normal of STP microorganisms	580	mg/l
Normal value for the food chain (secondary poisoning)	0,72	g/kg cibo
Normal value for the terrestrial compartment	0,63	mg/kgSS

Health - Derived no-effect level - DNEL / DMEL	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral			VND	87 mg/kg/d				
Inhalation	950 mg/m³	VND	VND	114 mg/m³	1900 mg/m³	VND	VND	950 mg/m³
Skin			VND	206 mg/kg/d	VND	343 mg/kg/d		

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction; RESP = Respirable Fraction; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available; NEA = no exposure expected; NPI = no hazard identified.
ACETONE

Indicator: acetone in urine.
Period: end of shift.
IBE: 50 mg / l
Note: Ns.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice. Personal protective equipment must be CE marked, showing that it complies with applicable standards.
For industrial/professional uses provide local exhaust ventilation (LEV) where emissions occur (dilution efficiency: 90%).
HAND PROTECTION
Use category III gloves (ref. standard EN 374). For definitive choice of gloves material consider: compatibility, degradation, breakthrough time and permeation. Work gloves wear time depends upon duration and type of wear. Suitable gloves (protection factor 2, permeation time 30-60 minutes), material (thickness, mm): butyl rubber (0,7 mm).
SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
Consider the appropriateness of providing antistatic clothing in the case of working environments in which there is a risk of explosion.
EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).
RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances presented in the product, a mask with a type AX filter combined with a type P filter should be worn (see standard EN 14387).
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.
The systems of abatement of gaseous effluents should include scrubbers or carbon filters that guarantee an efficiency of more than 90%. Any liquid effluents should be conveyed to a water treatment plant with an efficiency of at least 96.2%. In the case of a municipal waste water treatment plant, the daily flow rate should be at least 2000 m^3.

► SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance:	Aerosol	
Colour:	Variable (straw, green, blue)	
Odour:	Characteristic	
Odour threshold:	2 mg/m^3	Remark:Cometto-Munitz, Abraham 2009. Substance:ACETONE
pH:	Not applicable	
Melting point/freezing point:	Not applicable	
Initial boiling point:	Not applicable	
Boiling range:	Not applicable	
Flash point:	Not applicable	
Evaporation rate:	Not determined	
Flammability of solids and gases:	Not applicable	
Lower inflammability limit:	1,86 % (V/V)	Substance:PROPANE
Upper inflammability limit:	15 % (V/V)	Substance:PROPANE
Lower explosive limit:	1,86 % (V/V)	Substance:PROPANE
Upper explosive limit:	15 % (V/V)	Substance:PROPANE
Vapour pressure:	Not available	Substance:ACETONE
Vapour density:	Not determined	Temperature: 20 °C
Relative density:	0,71	
Solubility:	Insoluble in water	
Partition coefficient: n-octanol/water:	Not determined	
Auto-ignition temperature:	226 °C	Substance:DIMETHYLETHER
Decomposition temperature:	Not determined	
Viscosity:	Not determined	
Explosive properties:	Possible formation of explosive mixtures between air and vapours	
Oxidizing properties:	Not applicable. None of the contained substances has functional groups associated with oxidizing properties	

9.2. Other information

VOC (Directive 2010/75/EC):	73,79 %	-	523,91	g/litre
VOC (volatile carbon):	54,25 %	-	385,20	g/litre

► SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No hazardous reactions with other substances are foreseeable under normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of usage and storage for 36 months.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Reacts violently with: strong oxidizing agents. Attacks various types of plastic materials.

PROPANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

ACETONE
May react dangerously with: strong oxidizing agents, strong reducing agents. Forms peroxides with: strong oxidizing agents.

N-BUTANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

ISO-BUTANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

10.4. Conditions to avoid

Refer to section 7.
Avoid contact with acids and bases which can deteriorate the can. Avoid exposition to: high temperatures (>50 °C), naked flames, ignition sources, heat sources, overheated surface, heat. Risk of explosion.

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Avoid contact with: oxidizing agents. Fire hazard.
Avoid exposure to: high temperatures, heat, naked flames, ignition sources, sources of heat, electrostatic discharges, overheated surfaces.

PROPANE
Avoid exposure to: high temperatures, naked flames, ignition sources, sources of heat, overheated surfaces, heat. Possibility of explosion.

ACETONE
Avoid exposure to: sources of heat, naked flames.

N-BUTANE
Avoid exposure to: high temperatures, naked flames, ignition sources, sources of heat, overheated surfaces, heat. Possibility of explosion.

ISO-BUTANE
Avoid exposure to: high temperatures, naked flames, ignition sources, sources of heat, overheated surfaces, heat. Possibility of explosion.

10.5. Incompatible materials

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Attacks various types of plastic materials. Attacks various types of rubber.
Compatible materials: stainless steel, teflon, polyethylene, polypropylene.
Incompatible materials: butyl rubber, natural rubber, ethylene-propylene-diene monomer (EPDM), polystyrene.

PROPANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

ACETONE
Incompatible with: acids, oxidizing substances.
Compatible materials: steel, stainless steel, aluminium.
Incompatible materials: natural rubber, neoprene.

N-BUTANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

ISO-BUTANE
Avoid contact with: oxidizing agents, strong acids, strong alkalis, hypochlorites, nitrates, peroxides.

10.6. Hazardous decomposition products

In the event of a fire, the substances contained may generate the following decomposition products:

ACETONE
May develop: ketenes, irritant substances.

► SECTION 11: TOXICOLOGICAL INFORMATION

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information
Information not available

Information on likely routes of exposure

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Inhalation, dermal.

ACETONE
Inhalation, dermal.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

PROPANE
Contact with liquefied gas or its violent expansion can produce cold burns at the point of contact. Symptoms are redness, burning, itching, blisters and possible subsequent infections.
A high concentration causes drowsiness, headaches and dizziness, and because of the lack of oxygen it can cause asphyxiation. High concentrations can cause hypoxia and cardiotoxic effects, and if the oxygen concentration in the air falls below 17%, the result can also be fatal.

ACETONE
Inhalation: sore throat, cough, confusion, headache, dizziness, drowsiness, unconsciousness.
Dermal contact: dry skin.
Eyes: redness, pain, blurred vision, possible corneal damage.
Ingestion: nausea, vomiting.

Interactive effects
Information not available

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:	Not classified (no significant component)
LD50 (Oral) of the mixture:	Not classified (no significant component)
LD50 (Dermal) of the mixture:	Not classified (no significant component)

ETHANOL

LD50 (Oral)	1501 mg/kg Rat
LC50 (Inhalation)	5,9 mg/l/6h Rat

PROPANE

LD50 (Oral)	> 2000 mg/kg
LD50 (Dermal)	> 2000 mg/kg
LC50 (Inhalation)	> 20000 ppm/4h

ACETONE

LD50 (Oral)	5800 mg/kg rat (Freem JJ, Hayes EP, 1985, J. Toxicol. Env. Health 15: 609-621).
LD50 (Dermal)	7400 mg/kg Guinea pig (Roudabush RL et al., 1965, Toxicol Appl Pharmacol 7: 559-565).
LC50 (Inhalation)	132 mg/l/4h rat (Bruckner JV, Petersen RC, 1981, Toxicol Apl Pharmacol 61: 27-38).

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

LD50 (Oral)	> 16750 mg/kg rat (similar OECD 401).
LD50 (Dermal)	> 3350 mg/kg rabbit (similar OECD 402).
LC50 (Inhalation)	> 20 mg/l/4h rat

ISO-BUTANE

LC50 (Inhalation)	570000 ppm/4h rat (IUCLID)

N-BUTANE

LD50 (Oral)	> 2000 mg/kg
LD50 (Dermal)	> 2000 mg/kg
LC50 (Inhalation)	658 mg/l/4h rat

SKIN CORROSION / IRRITATION

Causes skin irritation

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Irritating.

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

Acute Eye Irritation/Corrosion (similar or equivalent to OECD method 405), rabbit: not irritating (source: ECHA website).

ACETONE

Acute Eye Irritation / Corrosion (similar or equivalent to OECD method 405), rabbit: irritant (source: ECHA website).

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class:

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

Skin sensitization (Local lymph node Assay, similar or equivalent to OECD method 429): not sensitizing (source: ECHA website).

ACETONE

Skin sensitization (Guinea Pig Maximization Test): non-sensitizing (source: ECHA website).

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class:

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

In vitro genetic toxicity (Bacterial Reverse Mutation Test, Ames test, similar or equivalent to OECD method 471):	negative (source: ECHA website).
In vivo genetic toxicity (Mammalian Bone Marrow Chromosome Aberration Test, similar or equivalent to OECD method 475):	negative (source: ECHA website).

ACETONE

In vitro genetic toxicity (Bacterial Reverse Mutation Test, Ames test, similar or equivalent OECD method 471, S. typhimurium):	negative (source: ECHA website).
In vivo genetic toxicity (Mammalian Erythrocyte Micronucleus Test):	negative (source: ECHA website).

CARCINOGENICITY

Does not meet the classification criteria for this hazard class:

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

Carcinogenicity studies (OECD method 451): no evidence of carcinogenic effects. NOEC (inhalation, mouse) = 31680 mg/m3 (source: ECHA website).

ACETONE

Acetone has been used extensively as a carrier in dermal carcinogenicity studies on several mouse species. There is no evidence of an increased incidence of tumors in the control groups treated with acetone alone, demonstrating a lack of carcinogenic potential of acetone (source: ECHA website).

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class:

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Two generation Reproduction Toxicity (OECD 416): NOAEC (inhalation, mice male/female) = 31680 mg/m^3 (source: ECHA website).

PROPANE
Reproduction / Developmental Toxicity Screening test (OCSE method 422): there are no indications of damaging effects on fetuses and development (source: supplier data).

ACETONE
Exposure to acetone doses of 5000 mg/L in drinking water for 8 weeks or 10000 mg/L in drinking water for 4 weeks had no adverse effects on the fertility of rat males (source: Dalgaard M et al., Pharmacol Toxicol 86: 92-100, 2000).

STOT - SINGLE EXPOSURE

May cause drowsiness or dizziness.

Target organ
HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Central nervous system.

ACETONE
Central nervous system.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class.

PROPANE
Neurological, haematological, or clinical effects were not observed in studies conducted over a 6-week period in male and female rats. At 12,000 ppm, male animals showed a 25% decrease in weight during the first week of exposure. The lowest concentration at which adverse effects were observed (LOAEC) in these studies was 12,000 ppm (equivalent to 21641 mg/m^3).

ASPIRATION HAZARD

Toxic for aspiration.

► SECTION 12: ECOLOGICAL INFORMATION

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it has negative effects on acquatic environment.

12.1. Toxicity

ETHANOL

LC50 - for Fish	14200 mg/l /96h Pimephales promelas
EC50 - for Algae / Aquatic Plants	275 mg/l /72h Chlorella vulgaris
Chronic NOEC for Crustacea	9,6 mg/l Daphnia magna

ACETONE

LC50 - for Fish	> 6210 mg/l /96h Pimephales promelas
EC50 - for Crustacea	8800 mg/l /48h Daphnia pulex
EC50 - for Algae / Aquatic Plants	> 100 mg/l /72h Selenastrum capricornutum

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE

EC50 - for Crustacea	3870 mg/l /48h Daphnia magna
EC50 - for Algae / Aquatic Plants	55 mg/l /72h Scenedesmus subspicatus

12.2. Persistence and degradability

ETHANOL
Solubility in water > 1000 mg/l
Rapidly degradable

PROPANE
Solubility in water 0,1 - 100 mg/l
Rapidly degradable

ACETONE
Rapidly degradable

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Rapidly degradable

ISO-BUTANE
Solubility in water 0,1 - 100 mg/l
Rapidly degradable

N-BUTANE
Solubility in water 0,1 - 100 mg/l
Rapidly degradable

12.3. Bio accumulative potential

ETHANOL
Partition coefficient: n-octanol/water - 0,35

PROPANE
Partition coefficient: n-octanol/water 2,86
BCF 13

ACETONE
Partition coefficient: n-octanol/water - 0,23
BCF 3

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Partition coefficient: n-octanol/water 3,6 (at 20 °C)

ISO-BUTANE
Partition coefficient: n-octanol/water 2,76
BCF 27

N-BUTANE
Partition coefficient: n-octanol/water 2,89
BCF 33

12.4. Mobility in soil

PROPANE
Partition coefficient: soil/water 2,66

HYDROCARBONS, C6, ISO-ALKANES, <5% n-HEXANE
Partition coefficient: soil/water 1,78

ISO-BUTANE
Partition coefficient: soil/water 1,54

N-BUTANE
Partition coefficient: soil/water 2,95

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects.

PROPANE
The product degrades rapidly in the air through photochemical reactions. Lifetime in the atmosphere can be considered very few days, with virtually zero ozone depletion potential. The global warming potential (GWP) is 3. Only under certain conditions, through the complex interaction with other atmospheric pollutants present and in certain climatic and meteorological conditions, near the surface, photochemical degradation could contribute to the formation of tropospheric ozone.

N-BUTANE
The product degrades rapidly in the air through photochemical reactions. Lifetime in the atmosphere can be considered very few days, with virtually zero ozone depletion potential. The global warming potential (GWP) is 4. Only under certain conditions, through the complex interaction with other atmospheric pollutants present and in certain climatic and meteorological conditions, near the surface, photochemical degradation could contribute to the formation of tropospheric ozone.

ISO-BUTANE
The product degrades rapidly in the air through photochemical reactions. Lifetime in the atmosphere can be considered very few days, with virtually zero ozone depletion potential. The global warming potential (GWP) is 3. Only under certain conditions, through the complex interaction with other atmospheric pollutants present and in certain climatic and meteorological conditions, near the surface, photochemical degradation could contribute to the formation of tropospheric ozone.

► SECTION 13: DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and / or its container must be determined in accordance with the provisions of Directive 2008/98/EC and its amendments, taking into account Regulation (EU) n.1357/2014, Decision (EU) n.955/2014 and Regulation (EU) n.997/2017. Methods for waste management must be evaluated case by case, in relation to the composition of the waste itself.

13.1. Waste treatment methods

Waste management is carried out without endangering human health and without harming the environment and without risk to water, air, soil, plants or animals. Do not dispose of waste into the drains or sewers. The product residues must be disposed of according to current regulations addressing to authorized companies. Waste transport must also be carried out in accordance with the regulations on the transport of dangerous goods.

CONTAMINATED PACKAGING. The generation of waste should be avoided or minimized wherever possible. The incineration and landfilling should be considered when recycling is not feasible. Maintain label(s) on the packaging. Deliver contaminated packaging to an authorized waste management company. The containers and packing materials contaminated with substances or preparations must be treated like the product and sent for recovery or disposal in compliance with national waste management regulations.

EUROPEAN WASTE CATALOGUE CODE. Current legislation does not allow the attribution of EWC codes for wastes containing the substance / preparation referred to herein, as they must be identified on the basis of information not available before use of the product.

The following EWC codes are suggested exclusively for the intact product which has not subject to manipulation and its packaging when disposed empty.
08 04 09* - waste adhesives and sealants containing organic solvents or other hazardous substances.
15 01 11* - metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers.

PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS.
Properties of waste which render it hazardous (intact product) in compliance with Regulation (UE) n. 1357/2014:
HP3 Flammable
HP4 Irritant — skin irritation and eye damage
HP5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP14 Ecotoxic

► SECTION 14: TRANSPORT INFORMATION

14.1. UN number

ADR / RID, IMDG, IATA: 1950

14.2. UN proper shipping name

ADR / RID: AEROSOLS
IMDG: AEROSOLS MIXTURE

IATA: AEROSOLS, FLAMMABLE MIXTURE

14.3. Transport hazard class(es)

ADR / RID: Class: 2 Label: 2.1 

IMDG: Class: 2 Label: 2.1 

IATA: Class: 2 Label: 2.1 

14.4. Packing group

ADR / RID, IMDG, IATA: -

14.5. Environmental hazards

ADR / RID: Environmentally Hazardous 

IMDG: Marine Pollutant 

IATA: NO

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: -- Special Provision: -	Limited Quantities: 1 L	Tunnel restriction code: (D)
IMDG:	EMS: F-D, S-U	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 150 Kg	Packaging instructions: 203
	Pass.:	Maximum quantity: 75 Kg	Packaging instructions: 203
	Special Instructions:	A145, A167, A802	

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

Information not relevant.

► SECTION 15: REGULATORY INFORMATION

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

Seveso Category - Directive 2012/18/EC:
P3a-E2

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006 Product:
Point 40

Substances in Candidate List (Art. 59 REACH):
On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH):
None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls:
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017) WGK 3:
Severe hazard to waters

15.2. Chemical safety assessment.

A chemical safety assessment has been performed for the following contained substances:

HYDROCARBONS, C6, ISO ALKANES, <5% n-HEXANE
PROPANE
ACETONE
N-BUTANE
ISO-BUTANE

This safety data sheet contains one or more Exposure Scenarios in an integrated form. Contents have been included in sections 1.2, 8, 9, 12, 15 and 16 of this safety data sheet.

► SECTION 16: OTHER INFORMATION

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Gas 1A	Flammable gas, category 1A
Aerosol 1	Aerosol, category 1
Aerosol 3	Aerosol, category 3
Flam. Liq. 2	Flammable liquid, category 2
Press. Gas (Liq.)	Liquefied gas
Asp. Tox. 1	Aspiration hazard, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category2
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurized container: may burst if heated.
H225	Highly flammable liquid and vapour.
H280	Contains gas under pressure; may burst if heated.
H304	May be fatal if swallowed and enters airways.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Use descriptor system:

ERC 4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC 8a	Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor)
PC 1	Adhesives, sealants
PROC 11	Non industrial spraying
PROC 7	Industrial spraying
PROC 8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)

- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)

14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

Product's classification is based on the calculation methods set out in Annex I of the CLP Regulation, unless otherwise indicated in sections 11 and 12.
The data for evaluation of chemical-physical properties are reported in section 9.