Safety Data Sheet according to (EC) No 1907/2006 as amended

SDS No. : 688350
V001.3

BONDERITE L-GP 333-1 EU

Revision: 29.07.2024
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

BONDERITE L-GP 333-1 EU
UFI: H1FW-JW2N-K208-EUKM

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

Intended use:
Dry film lubricant

1.3. Details of the supplier of the safety data sheet

Henkel AG & Co. KGaA
Henkelstr. 67
40589 Düsseldorf

Germany

Phone: +49 211 797 0

SDSinfo.Adhesive@henkel.com
For Safety Data Sheet updates please visit our website www.mysds.henkel.com or www.henkel-adhesives.com.

1.4. Emergency telephone number

The Henkel information service also provides an around-the-clock telephone service on phone no.+49-(0)211-797-3350 for exceptional cases.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Serious eye damage	Category 1
H318 Causes serious eye damage.	
Toxic to reproduction	Category 1B
H360D May damage the unborn child.	
Specific target organ toxicity - single exposure	Category 3
H336 May cause drowsiness or dizziness.	
Target organ: Central nervous system	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:

Contains N-ethyl-2-pyrrolidone

2-methoxy-1-methylethyl acetate

N-methyl-2-pyrrolidone

Signal word: Danger

Hazard statement:
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H360D May damage the unborn child.

Supplemental information Restricted to professional users.

Precautionary statement: Prevention
P201 Obtain special instructions before use.
P261 Avoid breathing mist/vapours.
P280 Wear eye protection/face protection.

Precautionary statement: Response
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor.

2.3. Other hazards

None if used properly.

Following substances are present in a concentration ≥ the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration ≥ the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No. EC Number REACH-Reg No.	Concentration	Classification	Specific Conc. Limits, M-factors and ATEs	Add. Information
N-ethyl-2-pyrrolidone 2687-91-4 220-250-6 01-2119472138-36	40- < 60 %	Eye Dam. 1, H318 Repr. 1B, H360D		
2-methoxy-1-methylethyl acetate 108-65-6 203-603-9 01-2119475791-29	20- < 40 %	Flam. Liq. 3, H226 STOT SE 3, H336		EU OEL
N-methyl-2-pyrrolidone 872-50-4 212-828-1 01-2119472430-46	0,1- < 1 %	Repr. 1B, H360D STOT SE 3, H335 Skin Irrit. 2, H315 Eye Irrit. 2, H319	STOT SE 3; H335; C >= 10 %	SVHC EU OEL

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.
For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Fresh air, oxygen supply, warmth; seek specialist medical attention.

Skin contact:
Immediately wash skin thoroughly with soap and water.

Eye contact:
Immediately flush eyes with soft jet of water or eye rinse solution for at least 5 minutes. If pains remain (intensive smarting, sensitivity to light, visual disturbance) continue flushing and contact/seek doctor or hospital.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

Vapors may cause drowsiness and dizziness.

After eye contact: Corrosive, may cause permanent damage to eyes (impairment of vision).

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

See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Carbon dioxide, foam, powder
Fine water spray

Extinguishing media which must not be used for safety reasons:
Water jet (solvent-containing product).

5.2. Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in fires.

5.3. Advice for firefighters
Wear self-contained breathing apparatus.
Wear protective equipment.

Additional information:
Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Danger of slipping on spilled product.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Remove with liquid-absorbing material (sand, peat, sawdust).
Dispose of contaminated material as waste according to Section 13.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin and eye contact.
Ensure that workrooms are adequately ventilated.
See advice in section 8
Take measures to prevent the build-up of electrostatic charges.

Hygiene measures:
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.
The workplace should be equipped with an emergency shower and eye-rinsing facility.

7.2. Conditions for safe storage, including any incompatibilities
Store in sealed original container.
Ensure adequate ventilation.
Storage at 2 to 8°C is recommended.
Store in a cool, dry place.
Store in a cool, well-ventilated place.

7.3. Specific end use(s)
Dry film lubricant

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Germany

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
1-Ethylpyrrolidin-2-one 2687-91-4			Skin designation:	Can be absorbed through the skin.	TRGS 900
1-Ethylpyrrolidin-2-one 2687-91-4	5	23	Exposure limit(s):	2 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
1-Ethylpyrrolidin-2-one 2687-91-4			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
2-Methoxy-1-methylethyl acetate 108-65-6 [2-METHOXY-1-METHYLETHYLACETATE]	50	275	Time Weighted Average (TWA):	Indicative	ECTLV
2-Methoxy-1-methylethyl acetate 108-65-6 [2-METHOXY-1-METHYLETHYLACETATE]	100	550	Short Term Exposure Limit (STEL):	Indicative	ECTLV
2-Methoxy-1-methylethyl acetate 108-65-6	50	270	Exposure limit(s):	1 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
2-Methoxy-1-methylethyl acetate 108-65-6			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
Carbon black 1333-86-4		10	Exposure limit(s):	2 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Carbon black 1333-86-4		1,25	Exposure limit(s):	If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Carbon black 1333-86-4			Short Term Exposure Classification:	Category II: substances with a resorptive effect.	TRGS 900
1-Methyl-2-pyrrolidone 872-50-4 [N-METHYL-2-PYRROLIDONE]	20	80	Short Term Exposure Limit (STEL):	Indicative	ECTLV
1-Methyl-2-pyrrolidone 872-50-4 [N-METHYL-2-PYRROLIDONE]			Skin designation:	Can be absorbed through the skin.	ECTLV
1-Methyl-2-pyrrolidone 872-50-4 [N-METHYL-2-PYRROLIDONE]	10	40	Time Weighted Average (TWA):	Indicative	ECTLV
1-Methyl-2-pyrrolidone 872-50-4			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
1-Methyl-2-pyrrolidone			Skin designation:	Can be absorbed through the	TRGS 900

872-50-4				skin.	
1-Methyl-2-pyrrolidone 872-50-4	20	82	Exposure limit(s):	2 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
1-Methyl-2-pyrrolidone 872-50-4 [1-Methyl-2-pyrrolidone]	20		Short Term Exposure Limit (STEL):		EU OELIII
1-Methyl-2-pyrrolidone 872-50-4 [1-Methyl-2-pyrrolidone]		80	Short Term Exposure Limit (STEL):		EU OELIII
1-Methyl-2-pyrrolidone 872-50-4 [1-Methyl-2-pyrrolidone]			Skin designation:	Can be absorbed through the skin.	EU OELIII
1-Methyl-2-pyrrolidone 872-50-4 [1-Methyl-2-pyrrolidone]	10	40	Time Weighted Average (TWA):		EU OELIII

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
1-Ethylpyrrolidin-2-one 2687-91-4	aqua (freshwater)		0,25 mg/l				
1-Ethylpyrrolidin-2-one 2687-91-4	aqua (marine water)		0,025 mg/l				
1-Ethylpyrrolidin-2-one 2687-91-4	aqua (intermittent releases)		1 mg/l				
1-Ethylpyrrolidin-2-one 2687-91-4	sewage treatment plant (STP)		10 mg/l				
1-Ethylpyrrolidin-2-one 2687-91-4	sediment (freshwater)				1,25 mg/kg		
1-Ethylpyrrolidin-2-one 2687-91-4	sediment (marine water)				0,125 mg/kg		
1-Ethylpyrrolidin-2-one 2687-91-4	Soil				0,104 mg/kg		
1-Methoxy-2-propyl 108-65-6	aqua (freshwater)		0,635 mg/l				
1-Methoxy-2-propyl 108-65-6	aqua (marine water)		0,0635 mg/l				
1-Methoxy-2-propyl 108-65-6	aqua (intermittent releases)		6,35 mg/l				
1-Methoxy-2-propyl 108-65-6	sewage treatment plant (STP)		100 mg/l				
1-Methoxy-2-propyl 108-65-6	sediment (freshwater)				3,29 mg/kg		
1-Methoxy-2-propyl 108-65-6	sediment (marine water)				0,329 mg/kg		
1-Methoxy-2-propyl 108-65-6	Soil				0,29 mg/kg		
N-methyl-2-pyrrolidone 872-50-4	aqua (freshwater)		0,25 mg/l				
N-methyl-2-pyrrolidone 872-50-4	aqua (marine water)		0,025 mg/l				
N-methyl-2-pyrrolidone 872-50-4	aqua (intermittent releases)		5 mg/l				
N-methyl-2-pyrrolidone 872-50-4	sediment (freshwater)				1,09 mg/kg		
N-methyl-2-pyrrolidone 872-50-4	Soil				0,07 mg/kg		
N-methyl-2-pyrrolidone 872-50-4	sewage treatment plant (STP)		10 mg/l				
N-methyl-2-pyrrolidone 872-50-4	sediment (marine water)				0,109 mg/kg		

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
1-Ethylpyrrolidin-2-one 2687-91-4	Workers	dermal	Long term exposure - systemic effects		4 mg/kg	
1-Ethylpyrrolidin-2-one 2687-91-4	Workers	inhalation	Acute/short term exposure - local effects		20,1 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	Workers	inhalation	Long term exposure - systemic effects		16,75 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	Workers	inhalation	Long term exposure - local effects		10,05 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	General population	inhalation	Long term exposure - systemic effects		1 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	General population	inhalation	Long term exposure - local effects		1,2 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	General population	inhalation	Acute/short term exposure - local effects		1,2 mg/m3	
1-Ethylpyrrolidin-2-one 2687-91-4	General population	dermal	Long term exposure - systemic effects		0,5 mg/kg	
1-Ethylpyrrolidin-2-one 2687-91-4	General population	oral	Long term exposure - systemic effects		0,5 mg/kg	
1-Methoxy-2-propyl 108-65-6	Workers	inhalation	Long term exposure - systemic effects		275 mg/m3	
1-Methoxy-2-propyl 108-65-6	General population	inhalation	Long term exposure - systemic effects		33 mg/m3	
1-Methoxy-2-propyl 108-65-6	Workers	dermal	Long term exposure - systemic effects		796 mg/kg	
1-Methoxy-2-propyl 108-65-6	General population	inhalation	Long term exposure - local effects		33 mg/m3	
1-Methoxy-2-propyl 108-65-6	General population	dermal	Long term exposure - systemic effects		320 mg/kg	
1-Methoxy-2-propyl 108-65-6	General population	oral	Long term exposure - systemic effects		36 mg/kg	
1-Methoxy-2-propyl 108-65-6	Workers	inhalation	Acute/short term exposure - local effects		550 mg/m3	
1-Methoxy-2-propyl 108-65-6	General population	oral	Acute/short term exposure - systemic effects		500 mg/kg	
N-methyl-2-pyrrolidone 872-50-4	Workers	inhalation	Long term exposure - systemic effects		14,4 mg/m3	
N-methyl-2-pyrrolidone 872-50-4	Workers	inhalation	Long term exposure - local effects		40 mg/m3	
N-methyl-2-pyrrolidone 872-50-4	Workers	dermal	Long term exposure - systemic effects		4,8 mg/kg	
N-methyl-2-pyrrolidone 872-50-4	General population	inhalation	Long term exposure - systemic effects		3,6 mg/m3	
N-methyl-2-pyrrolidone 872-50-4	General population	inhalation	Long term exposure - local effects		4,5 mg/m3	
N-methyl-2-pyrrolidone 872-50-4	General population	dermal	Long term exposure -		2,4 mg/kg	

			systemic effects			
N-methyl-2-pyrrolidone 872-50-4	General population	oral	Long term exposure - systemic effects		0,85 mg/kg	

Biological Exposure Indices:

Ingredient [Regulated substance]	Parameters	Biological specimen	Sampling time	Conc.	Basis of biol. exposure index	Remark	Additional Information
1-Methyl-2-pyrrolidone 872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	Sampling time: End of shift.	150 mg/l	DE BGW		

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/suction at the workplace.

Respiratory protection:
In case of aerosol formation, we recommend wearing of appropriate respiratory protection equipment with ABEK P2 filter (EN 14387).
This recommendation should be matched to local conditions.

Hand protection:
Chemical-resistant protective gloves (EN 374). Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Isobutylene-isoprene rubber (IIR; >= 0.7 mm thickness) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Isobutylene-isoprene rubber (IIR; >= 0.7 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Goggles which can be tightly sealed.
Protective eye equipment should conform to EN166.

Skin protection:
Suitable protective clothing
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:
The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Delivery form	liquid
Colour	black
Odor	of solvent
Physical state	liquid
Melting point	Not applicable, Product is a liquid
Solidification temperature	< -50 °C (< -58 °F)
Initial boiling point	222 °C (431.6 °F)
Flammability	The product is not flammable.
Explosive limits	
lower	1,3 %(V);
upper	7,7 %(V);
Flash point	61 °C (141.8 °F)
Auto-ignition temperature	245 °C (473 °F)
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic

	peroxide and does not decompose under foreseen conditions of use
pH	Not applicable, Product is non-soluble (in water).
Viscosity (kinematic) (40 °C (104 °F);)	> 20,5 mm2/s thixotropic
Viscosity, dynamic ()	500 - 1.000 mPa.s Brookfield viscosity (RVT)
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Miscible
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure (20 °C (68 °F))	3,7 hPa
Vapour pressure (50 °C (122 °F))	22,1 hPa
Density (20 °C (68 °F))	1,07 g/cm3 no method / method unknown
Relative vapour density: (20 °C)	> 1
Particle characteristics	Not applicable Product is a liquid

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity
Reaction with strong oxidants.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
No decomposition if used according to specifications.

10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
None if used for intended purpose.
In case of fire toxic gases can be released.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	LD50	3.200 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
2-methoxy-1-methylethyl acetate 108-65-6	LD50	6.190 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
N-methyl-2-pyrrolidone 872-50-4	LD50	4.150 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
2-methoxy-1-methylethyl acetate 108-65-6	LD50	> 5.000 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
N-methyl-2-pyrrolidone 872-50-4	LD50	> 5.000 mg/kg	rat	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Test atmosphere	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	LC50	> 5,1 mg/l	dust/mist	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)
2-methoxy-1-methylethyl acetate 108-65-6	LC0	> 70,458 mg/l	vapour	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)
2-methoxy-1-methylethyl acetate 108-65-6	LC50	> 70,458 mg/l	vapour	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)
N-methyl-2-pyrrolidone 872-50-4	LC50	> 5,1 mg/l	dust/mist	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
N-methyl-2-pyrrolidone 872-50-4	irritating	24 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
N-methyl-2-pyrrolidone 872-50-4	moderately irritating		human	not specified

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	Category 1 (irreversible effects on the eye)		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
2-methoxy-1-methylethyl acetate 108-65-6	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
N-methyl-2-pyrrolidone 872-50-4	irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	not sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
N-methyl-2-pyrrolidone 872-50-4	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-methoxy-1-methylethyl acetate 108-65-6	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
2-methoxy-1-methylethyl acetate 108-65-6	negative	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro	without		OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)
N-methyl-2-pyrrolidone 872-50-4	negative	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro	without		OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)
N-methyl-2-pyrrolidone 872-50-4	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
N-methyl-2-pyrrolidone 872-50-4	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
N-methyl-2-pyrrolidone 872-50-4	negative	oral: gavage		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
N-methyl-2-pyrrolidone 872-50-4	negative	oral: gavage		hamster, Chinese	OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)

Carcinogenicity

No data available.

Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	NOAEL P 1.000 mg/kg NOAEL F1 1.000 mg/kg	screening	oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
N-methyl-2-pyrrolidone 872-50-4	NOAEL P 160 mg/kg NOAEL F1 160 mg/kg NOAEL F2 160 mg/kg	Two generation study	oral: feed	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

STOT-single exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Assessment	Route of exposure	Target Organs	Remarks
2-methoxy-1-methylethyl acetate 108-65-6	May cause drowsiness or dizziness.			

STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	NOAEL >= 1.000 mg/kg	oral: gavage	41 - 45 d daily	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
N-methyl-2-pyrrolidone 872-50-4	NOAEL 0,5 mg/l	inhalation	90 days 6 hrs/day, 5 days/wk	rat	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)

Aspiration hazard:

No data available.

11.2 Information on other hazards

not applicable

SECTION 12: Ecological information

General ecological information:
Do not empty into drains / surface water / ground water.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	LC50	> 446 - 999 mg/l	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-methoxy-1-methylethyl acetate 108-65-6	LC50	100 - 180 mg/l	96 h	Salmo gairdneri (new name: Oncorhynchus mykiss)	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-methoxy-1-methylethyl acetate 108-65-6	LC50	63,5 mg/l	14 d	Oryzias latipes	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)
N-methyl-2-pyrrolidone 872-50-4	LC50	4.000 mg/l	96 h	Leuciscus idus	DIN 38412-15

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	EC50	> 100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-methoxy-1-methylethyl acetate 108-65-6	EC50	> 500 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
N-methyl-2-pyrrolidone 872-50-4	EC50	4.897 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
2-methoxy-1-methylethyl acetate 108-65-6	NOEC	> 100 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
N-methyl-2-pyrrolidone 872-50-4	NOEC	12,5 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	EC50	> 100 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-methoxy-1-methylethyl acetate 108-65-6	NOEC	> 1.000 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-methoxy-1-methylethyl acetate 108-65-6	EC50	> 1.000 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
N-methyl-2-pyrrolidone 872-50-4	EC50	> 500 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	DIN 38412-09

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
N-ethyl-2-pyrrolidone 2687-91-4	EC 50	> 10.000 mg/l	16 h		not specified
2-methoxy-1-methylethyl acetate 108-65-6	EC 50	> 100 mg/l			not specified

12.2. Persistence and degradability

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
N-ethyl-2-pyrrolidone 2687-91-4	readily biodegradable		90 - 100 %	28 d	OECD Guideline 301 A (new version) (Ready Biodegradability: DOC Die Away Test)
N-ethyl-2-pyrrolidone 2687-91-4		aerobic	> 70 %		OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
2-methoxy-1-methylethyl acetate 108-65-6	inherently biodegradable	aerobic	100 %	8 d	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
2-methoxy-1-methylethyl acetate 108-65-6	readily biodegradable		90 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
N-methyl-2-pyrrolidone 872-50-4	inherently biodegradable	aerobic	> 90 %	8 d	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
N-methyl-2-pyrrolidone 872-50-4	readily biodegradable	aerobic	92 %	14 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	LogPow	Temperature	Method
N-ethyl-2-pyrrolidone 2687-91-4	-0,04		not specified
2-methoxy-1-methylethyl acetate 108-65-6	0,56		not specified
N-methyl-2-pyrrolidone 872-50-4	-0,46	25 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

12.5. Results of PBT and vPvB assessment

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	PBT / vPvB
N-ethyl-2-pyrrolidone 2687-91-4	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
2-methoxy-1-methylethyl acetate 108-65-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
N-methyl-2-pyrrolidone 872-50-4	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Endocrine disrupting properties

not applicable

12.7. Other adverse effects

The product contains organic solvents which are insoluble in water. According to the requirements of the ATV regulations for the dis charge of wastewater from commercial and industrial plant, organic solvents which are immiscible with water can only be dis charged to an extent which corresponds to their solubility in water. The local discharge regulations take precedence.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
In consultation with the responsible local authority, must be subjected to special treatment.

Waste code

120199

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1. UN number or ID number

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.2. UN proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.3. Transport hazard class(es)

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.4. Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

14.5. Environmental hazards

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 1005/2009):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable
VOC content	72,4 %

(2010/75/EU)

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

National regulations/information (Germany):

WGK:	WGK 1: slightly hazardous to water (Ordinance on facilities for handling substances that are hazardous to water (AwSV)) Classification according to AwSV, Annex 1 (5.2)
Storage class according to TRGS 510:	10
General remarks (DE):	This product is in scope of the German regulation "ChemikalienVerbotsVerordnung"

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text
of all abbreviations indicated by codes in this safety data sheet are as follows:
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H360D May damage the unborn child.

ED:	Substance identified as having endocrine disrupting properties
EU OEL:	Substance with a Union workplace exposure limit
EU EXPLD 1:	Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD 2	Substance listed in Annex II, Reg (EC) No. 2019/1148
SVHC:	Substance of very high concern (REACH Candidate List)
PBT:	Substance fulfilling persistent, bioaccumulative and toxic criteria
PBT/vPvB:	Substance fulfilling persistent, bioaccumulative and toxic plus very persistent and very bioaccumulative criteria
vPvB:	Substance fulfilling very persistent and very bioaccumulative criteria

Further information:
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