

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Trade name	: Mowital® SB
Chemical name	: polyvinyl butyral
CAS-No.	: 68648-78-2 or 63148-65-2
SDS Number	: 200004
Synonyms	: SB 70 HH
Product group	: Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Main use category	: For industrial use only
Use of the substance/mixture	: Temporary binder for ceramics; Coating; Adhesives; 3D printing; Additive/binder for primer, Printing ink

1.2.2. Uses advised against

Restrictions on use	: Unknown
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1.3. Details of the supplier of the safety data sheet**Manufacturer/Supplier**

Kuraray Europe GmbH
Philipp-Reis-Str. 4
D-65795 Hattersheim
Germany
Telephone: +49-69-305-85300
Technical Contact: +49-69-305-13345
E-mail: product-safety@kuraray.com

1.4. Emergency telephone number

Emergency number	: +44-20-35147487 or 0-800-680-0425 - Access code: 334674
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SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

No labelling applicable

2.3. Other hazards

Other hazards which do not result in classification	: Fine particles can form explosive mixtures with air. Avoid creating or spreading dust. Difficult to ignite. Possible precautions against a dust explosion recommended.
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This substance does not meet the criteria of Regulation (EC) No 1907/2006, Annex XIII for vPvB / PBT.
Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII.

The substance/mixture has no endocrine disrupting properties.

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SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Mowital® SB
CAS-No. : 68648-78-2 or 63148-65-2

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Polyvinyl butyral	CAS-No.: 68648-78-2; 63148-65-2	> 97.5	Not classified
Water (Impurity)	CAS-No.: 7732-18-5 EC-No.: 231-791-2	< 2.4	Not classified
n-Butyraldehyde (Impurity)	CAS-No.: 123-72-8 EC-No.: 204-646-6 EC Index-No.: 605-006-00-2	< 0.05	Flam. Liq. 2, H225 Eye Irrit. 2, H319
Sodium chloride (Impurity)	CAS-No.: 7647-14-5 EC-No.: 231-598-3	< 0.05	Not classified

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a doctor if symptoms occur or persist.
First-aid measures after skin contact : IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse eyes with water as a precaution. Do not rub the eye. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion : Rinse mouth thoroughly with water. If the quantity swallowed is significant : Call a physician immediately or Poison centre.

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

Symptoms/effects : Irritation of the respiratory tract, skin, eyes and mucous membranes possible.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water fog. Water spray. Dry powder. Foam. Carbon dioxide (CO₂). When using the extinguishing agent, make sure no dust is formed in the air.
Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Could burn but do not ignite readily. The product may form dust and build up electrostatic charges, which may produce an electric spark (ignition source). Proper grounding procedures to avoid static electricity should be followed.

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- Reactivity in case of fire : Avoid formation of dust. Risk of dust explosion if enriched with fine dust in the presence of air.
- Hazardous decomposition products in case of fire : In the event of fire, harmful gases may be produced.

5.3. Advice for firefighters

- Firefighting instructions : Use ordinary fire-fighting measures, taking into account the hazards from other materials involved. Move containers away from the fire area if this can be done without risk.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Measures in case of dust release : Avoid inhalation of dust and contact with skin and eyes.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Environmental officer must be informed of all releases.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Avoid formation of dust. Pick up dust with a vacuum cleaner with HEPA filter. Do not use compressed air for cleaning.
- Other information : Dispose of waste according to applicable legislation.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Avoid creating or spreading dust. The material must not be deposited in large quantities, especially on horizontal surfaces, as it could become released into the air from there, form flammable dust clouds and contribute to secondary explosions. Any unavoidable deposit of dust must be regularly removed. Prevent build-up of electrostatic charges (e.g. by grounding). Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Provide appropriate exhaust ventilation at places of dust forming. Use only in well-ventilated areas. Observe recognised industrial hygiene measures. Avoid prolonged and repeated contact with skin.
- Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool. Store in the original container well sealed.

Germany

- Storage class (LGK, TRGS 510) : LGK 11 - Combustible solids

7.3. Specific end use(s)

Temporary binder for ceramics. Additive/binder for primer. Varnish. coatings. Printing ink. For industrial use only.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Mowital® SB (68648-78-2 oder 63148-65-2)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	General dust limit value
AGW (OEL TWA)	1.25 mg/m ³ (A)
	10 mg/m ³
Peak exposure limitation factor	2(II)
Remark	AGS - Committee for Hazardous Substances; DFG - Senate Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area of the DFG (MAK Commission); Y - There is no need to fear a risk of fruit damage if the occupational exposure limit value and the biological limit value (BGW) are complied with
Regulatory reference	TRGS900
n-Butyraldehyde (123-72-8)	
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	64 mg/m ³
	20 ppm
Peak exposure limitation factor	1(I)
Remark	AGS - Committee for Hazardous Substances
Regulatory reference	TRGS900

8.1.2. Recommended monitoring procedures

Monitoring methods	
Monitoring methods	Follow standard monitoring procedures.

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the protective equipment.

Personal protective equipment symbol(s):



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8.2.2.1. Eye and face protection

Eye protection:

Safety glasses (EN 166).

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing.

Hand protection:

In case of repeated or prolonged contact wear gloves.

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.12		EN ISO 374

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. In case of dust: Wear dust mask with filter type P2.

8.2.2.4. Thermal hazards

Thermal hazard protection:

Heatproof clothing.

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

Other information:

Provide appropriate exhaust ventilation at places of dust forming. Ensure adequate air ventilation. Degree of ventilation must be adapted to the conditions. Where appropriate, use process chambers, local exhaust systems or other structural measures to control airborne concentrations to keep them below recommended exposure limits. If no exposure limits have been set, keep concentrations in the air at an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Colourless, Appearance white
Appearance	: Powders
Odour	: Odourless
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Could burn but do not ignite readily
Lower explosion limit	: No data available
Upper explosion limit	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not available
pH	: Not available
pH solution	: Not available
Viscosity, kinematic	: Not applicable
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available

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Relative density	: Not available
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available

Polyvinyl butyral (68648-78-2; 63148-65-2)	
Flash point	Not applicable
Auto-ignition temperature	> 380 °C

Water (7732-18-5)	
Boiling point	100 °C
Vapour pressure	23.8 mm Hg

n-Butyraldehyde (123-72-8)	
Boiling point	75 °C Atm. press.: 101,3 kPa
Flash point	< 10 °C Atm. press.: 101,3 kPa
Auto-ignition temperature	230 °C
Vapour pressure	12.2 kPa at 20°C Source: ICSC

Sodium chloride (7647-14-5)	
Boiling point	1465 °C Source: HSDB
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Vapour pressure	1 mm Hg at 1589 °F Source: CAMEO

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Dust explosion category : St 1 - Weak explosion

9.2.2. Other safety characteristics

VOC content : < 0.1 %

Additional information : Vicat softening temperature 55 - 63 °C DIN EN ISO 306

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Strong acids. Strong oxidizing agents.

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10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

n-Butyraldehyde (123-72-8)	
LD50 oral rat	≈ 5890 mg/kg bodyweight Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rabbit	1046 mg/kg
LC50 Inhalation - Rat	> 5.46 mg/l air Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

Sodium chloride (7647-14-5)	
LD50 oral rat	3000 mg/kg Source: ChemIDplus
LD50 dermal rabbit	> 10000 mg/kg bodyweight
LC50 Inhalation - Rat (Dust/Mist)	> 10.5 mg/l Source: Corporate Solution From Thomson Micromedex

Skin corrosion/irritation : Not classified
Additional information : Dust can irritate the respiratory tract, skin and eyes

Water (7732-18-5)	
pH	7

Serious eye damage/irritation : Not classified

Water (7732-18-5)	
pH	7

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

Mowital® SB (68648-78-2 oder 63148-65-2)	
Viscosity, kinematic	Not applicable

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The substance/mixture has no endocrine disrupting properties.

11.2.2. Other information

Potential adverse human health effects and symptoms : Existing skin and respiratory conditions, including skin inflammation, asthma and chronic lung disease may be exacerbated by exposure

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified

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Hazardous to the aquatic environment, long-term (chronic) : Not classified

n-Butyraldehyde (123-72-8)	
LC50 - Fish	25.8 mg/l Test organisms (species): Pimephales promelas

Sodium chloride (7647-14-5)	
LC50 - Fish	5840 mg/l Test organisms (species): Lepomis macrochirus
LOEC (chronic)	441 mg/l Test organisms (species): Daphnia pulex Duration: '21 d'
NOEC (chronic)	314 mg/l Test organisms (species): Daphnia pulex Duration: '21 d'

12.2. Persistence and degradability

Mowital® SB (68648-78-2 oder 63148-65-2)	
Persistence and degradability	No data is available on the degradability of this product.

12.3. Bioaccumulative potential

Mowital® SB (68648-78-2 oder 63148-65-2)	
Bioaccumulative potential	No data available.

Water (7732-18-5)	
Partition coefficient n-octanol/water (Log Pow)	-1.38

n-Butyraldehyde (123-72-8)	
Partition coefficient n-octanol/water (Log Pow)	0.88

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Mowital® SB (68648-78-2 oder 63148-65-2)	
This substance does not meet the criteria of Regulation (EC) No 1907/2006, Annex XIII for vPvB / PBT	

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

Other adverse effects : No other adverse effects on the environment (e.g. ozone depletion, photochemical ozone formation potential, global warming potential) are expected from this constituent.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
European List of Waste (LoW, EC 2000/532) : 07 02 13 - waste plastic

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not regulated as dangerous goods.	Not regulated as dangerous goods.	Not regulated as dangerous goods.	Not regulated as dangerous goods.	Not regulated as dangerous goods.
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

No data available

Transport by sea

No data available

Air transport

No data available

Inland waterway transport

No data available

Rail transport

No data available

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

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PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

VOC Directive (2004/42)

VOC content : < 0.1 %

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG).
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).

Water hazard class (WGK) : WGK nwg, Non-hazardous to water.

WGK remark : ID No. 766.

Hazardous Incident Ordinance (12. BImSchV) : Is not subject to the Hazardous Incident Ordinance (12. BImSchV)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association

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Abbreviations and acronyms:	
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Data sources : Supplier's safety documents. Source: European Chemicals Agency, <http://echa.europa.eu/>.

Full text of H- and EUH-statements:	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.

The classification complies with : ATP 12

Disclaimer: The accuracy of this information is not guaranteed. The information is believed to be accurate. This information must be used to make an independent determination of the measures necessary to ensure the safety of workers and the environment. Kuraray cannot anticipate all conditions under which this information and the product or other manufacturer's products may be used in conjunction with their product. It is the responsibility of the user to ensure safe conditions when handling, storing and disposing of the product and to accept liability for loss, injury, damage or expense due to improper use. The information in this data sheet is based on current knowledge.