| MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE COMPANY

1.1 Product identifiers Item no. (manufacturer/supplier): Trade name:

8072

CARDIP® Hardener Medium 8072

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

Relevant identified uses:

Hardener for CARDIP® 80 Series 2K HS ClearCoats.
The product is intended for industrial use.

1.3 Details of the supplier providing the safety data sheet

Manufacturer:

Colosol Coatings GmbH
Buchäckerring 36
74906 Bad Rappenau
Germany

Tel.: +49 7066 - 96 59 400
Email: lab@cardip.org

1.4 Emergency

Emergency number:

Germany: +49 (0) 7066 - 96 59 400

SECTION 2: POSSIBLE HAZARDS

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

The mixture is classified as hazardous according to Regulation (EC) No. 1272/2008 [CLP].

Flam. Liq. 3 / H226	Flammable liquids	Flammable liquid and vapor.
Acute Tox. 4 / H332	Acute toxicity (inhalation)	Harmful if inhaled.
Skin Sens. 1 / H317	Respiratory or skin sensitization	May cause allergic skin reactions.
STOT SE 3 / H335	Specific target organ toxicity (single exposure)	May cause respiratory irritation.
STOT SE 3 / H336	Specific target organ toxicity (single exposure)	May cause drowsiness and dizziness.

2.2 Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP] Hazard pictograms:

Warning

SECTION 2: POSSIBLE HAZARDS

Hazard statements:

H226	Flammable liquid and vapor.
H33	Harmful if inhaled.
H317	May cause allergic skin reactions.
H335	May cause respiratory irritation.
H336	May cause respiratory irritation.

Safety instructions:

P210	Keep away from heat, hot surfaces, sparks, open flames, and other sources of ignition. No smoking.
P241	Use explosion-proof electrical equipment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+ P361+ P353	IF ON SKIN (or hair): Remove/wash contaminated clothing immediately. Rinse skin with water [or shower].
P261	Avoid inhaling dust/fume/gas/mist/vapors/spray.
P405	Keep locked up.

Hazardous components for labeling: n-butyl acetate
Hexamethylene-1,6-diisocyanate homopolymer; aliphatic polyisocyanate

Additional hazard characteristics (EU):

EUH066	Repeated exposure may cause skin to become dry or cracked.
EUH204	Contains isocyanates. May cause allergic reactions.

2.3 Other hazards: The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, Annex XIII.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.2. Mixtures

Product description / Chemical characterization

Description

Hazardous ingredients

Classification according to Regulation (EC) No. 1272/2008 [CLP]

EC No CAS INDEX No.	REACH No. Chemical name Classification // Comment	% by weight
203-603-9 108-65-6 607-195-00-7	01-2119475791-29 2-methoxy-1-methylethyl acetate Flam. Liq. 3 H226	12.5 - 20
204-658-1 123-86 607-025-00-1	01-2119485493-29 n-Butyl acetate Flam. Liq. 3 H226 / STOT SE 3 H336	20

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

EC No CAS INDEX	REACH No. Chemical name Classification // Comment	% by weight
500-060-2 28182-81	01-2119485796-17 Hexamethylene-1,6-diisocyanate homopolymer; aliphatic polyisocyanate Acute Tox. 4 H332 / Skin Sens. 1 H317 / STOT SE 3 H335	50 - 100
203-933-3 112-07 607-038-00-2	01-211975 2-butoxyethyl acetate Acute Tox. 4 H302 / Acute Tox. 4 H312 / Acute Tox. 4 H332	5 - 10

Additional information: Full text of classifications: see Section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General information: If symptoms occur or in case of doubt, seek medical advice. If unconscious, do not give anything by mouth, place in a stable lateral position and seek medical advice.

After inhalation: Move affected persons to fresh air and keep them warm and calm. If breathing is irregular or has stopped, start artificial respiration.

After skin contact: Remove contaminated, soaked clothing immediately. In case of contact with skin, wash immediately with plenty of soap and water. Do not use solvents or thinners.

After eye contact: Rinse gently with water for several minutes. Remove any contact lenses if possible. Continue rinsing. Seek medical advice immediately.

After ingestion: If swallowed, rinse mouth with water (only if victim is conscious). Seek medical advice immediately. Keep victim calm. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

If symptoms occur or in case of doubt, seek medical advice.

4.3 Information on immediate medical assistance or special treatment

No special measures are necessary.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media Suitable extinguishing media:

Alcohol-resistant foam, carbon dioxide, powder, spray mist, (water) sharp water jet

Extinguishing media which must not be used for safety reasons:

5.2 Special hazards arising from the substance or mixture

Fire produces dense black smoke. Inhalation of hazardous decomposition products may cause serious health damage.

5.3 Firefighting instructions

Keep respiratory protection equipment ready. Cool closed containers with water near the source of the fire. Do not allow extinguishing water to enter drains, the ground, or waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Keep away from sources of ignition. Ventilate the affected area. Do not breathe fumes.

6.2. Environmental precautions

Do not allow to enter drains or watercourses. In case of contamination of rivers, lakes or sewage systems, inform the responsible authorities in accordance with local regulations.

6.3 Methods and material for containment and cleaning up

Contain spilled material with non-combustible absorbent material (e.g., sand, earth, vermiculite, diatomaceous earth) and collect in containers provided for disposal in accordance with local regulations (see Section 13). Clean up with cleaning agents, do not use solvents.

6.4 Reference to other sections

Observe protective regulations (see Sections 7 and 8).

SECTION 7: HANDLING AND STORAGE

7.1 Protective measures for safe handling

Instructions for safe handling:

Avoid the formation of flammable and explosive vapor concentrations in the air and do not exceed the occupational exposure limits. Only use the material in areas where open flames, fire, and other sources of ignition are kept away. Electrical equipment must be protected in accordance with recognized standards. The material may become electrostatically charged. Ensure that containers, equipment, pumps, and extraction systems are earthed. Wearing antistatic clothing, including footwear, is recommended. Floors must be electrically conductive. Keep away from heat sources, sparks, and open flames. Use spark-proof tools. Avoid contact with skin, eyes, and clothing. Do not inhale dust, particles, or spray mist when using this preparation. Avoid inhaling grinding dust. Do not eat, drink or smoke while working. Personal protective equipment: see Section 8. Never empty containers under pressure – not even pressure containers! Always store in containers made of the same material as the original container. Observe statutory safety and protection regulations.

Fire and explosion protection information:

Damp vapors are heavier than air. Damp vapors form explosive mixtures with air.

7.2 Conditions for safe storage, taking into account incompatibilities

Requirements for storage rooms and containers:

Store in accordance with the Industrial Safety Regulation. Keep containers tightly closed. Never empty containers under pressure – do not use pressure containers! No smoking. Keep out of reach of unauthorized persons. Store containers upright and carefully sealed to prevent any leakage. Floors must comply with the "Guidelines for the prevention of ignition hazards due to electrostatic charges (TRBS 2153)".

Storage instructions:

Keep away from highly acidic and alkaline materials and oxidizing agents.

Further information on storage conditions:

°Follow the instructions on the label. Store in well-ventilated, dry rooms at temperatures between 15°C and 30°° . Protect from heat and direct sunlight. Keep containers tightly closed. Remove all sources of ignition. No smoking. Keep out of reach of unauthorized persons. Store containers upright and carefully closed to prevent any leakage.

Storage class:

3 Flammable liquids

7.3. Specific end uses

Observe the technical data sheet.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

8.1 Parameters to be monitored:

2-methoxy-1-methylethyl acetate

INDEX No. 607-195-00-7 / EC No. 203-603-9 / CAS No. 108-65-6

TRGS 900, AGW, long-term value: 270 mg/m3; 50 ppm

TRGS 900, AGW, short-term value: 270 mg/m3; 50 ppm

n-butyl acetate

INDEX No. 607-025-00-1 / EC No. 204-658-1 / CAS No. 123-86-4

TRGS 900, AGW, long-term value: 300 mg/m3; 62 ppm

TRGS 900, AGW, short-term value: 600 mg/m3; 124 ppm

2-butoxyethyl acetate

INDEX No. 607-038-00-2 / EC No. 203-933-3 / CAS No. 112-07-2

TRGS 900, AGW, long-term value: 130 mg/m3; 20 ppm

TRGS 900, AGW, short-term value: 520 mg/m3; 80 ppm Note:

(May be absorbed through the skin.) DFG, MAK, long-term

value: 66 mg/m3; 10 ppm

DFG, MAK, short-term value: 132 mg/m3; 20 ppm

Note: (H, sum of air concentrations of 2-butoxyethanol and 2-butoxyethyl acetate) TRGS 903, BGW, long-term value: 100 mg/L

Note: Butoxyacetic acid; urine; for long-term exposure TRGS 903, BGW, long-term value: 200 mg/L

Note: Butoxyacetic acid; After hydrolysis:; Urine; for long-term exposure BAT, long-term value: 150 mg/L

Note: Butoxyacetic acid; After hydrolysis:; Urine; for long-term exposure

Additional information:

Long-term value: Long-term occupational exposure limit Short-term value: Short-term occupational exposure limit Peak limit: Peak limit

8.2 Exposure limits and monitoring

Ensure good ventilation. This can be achieved by local or room extraction. If this is not sufficient to keep the aerosol and solvent vapor concentration below the occupational exposure limits, suitable respiratory protective equipment must be worn.

8.3 Limitation and monitoring of exposure at the workplace

Respiratory protection:

If the solvent concentration exceeds the occupational exposure limits, a suitable, approved respiratory protective device must be worn. The wearing time limits according to GefStoffV in conjunction with the rules for the use of respiratory protective devices (BGR 190) must be observed. Only use respiratory protective devices with CE marking including a four-digit test number.

Filter A/P2 according to EN 141, EN 143

Hand protection:

For prolonged or repeated use, the following glove material should be used: NBR (nitrile rubber) Thickness of glove material 0.7 mm; penetration time (maximum wearing time) 60 min. The instructions and information provided by the protective glove manufacturer regarding use, storage, maintenance, and replacement must be observed. Penetration time of the glove material depending on the strength and duration of skin exposure. Recommended glove brands DIN EN 374 Protective creams can help protect exposed areas of the skin. These should not be used after contact.

SECTION 8: EXPOSURE LIMITS AND MONITORING/PERSONAL PROTECTIVE EQUIPMENT

8.3 Limitation and monitoring of exposure at the workplace

Eye protection: Wear tightly fitting safety goggles if there is a risk of splashing.

Body protection: Wear antistatic clothing made of natural fibers (cotton) or heat-resistant synthetic fibers.

Protective measures: After contact, wash skin thoroughly with soap and water or use a suitable cleaning agent.

8.4 Limitation and monitoring of environmental exposure

Do not allow to enter drains or watercourses. See Section 7. No additional measures are required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties Appearance:

Physical state:	Liquid See
Color: Odor:	label.
Odor threshold:	Characteristic
pH value at 20 °C: Melting	Not applicable
point/freezing point: Initial boiling	N/A
point and boiling range: Flash	Not applicable
point: Evaporation rate:	124° C Source: n-butyl acetate
Flammability (solid, gaseous):	26° C c.c.
Burn time (s):	Not applicable
Upper/lower flammability or explosion limits:	Not applicable
Lower explosion limit:	
Upper explosion limit:	
Vapor pressure at 20 °C: Vapor	1.2 vol
density:	10.8 vol
Relative density:	10.7 mbar
Density at 20 °C:	Not applicable
Solubility:	
	1.04 g/cm
Water solubility (g/L) at 20 °C:	insoluble
Auto-ignition temperature:	280 °°
Decomposition temperature:	Not applicable Not
Viscosity at 000 °C: Explosive	applicable
properties: Fire-promoting	Not applicable Not
properties:	applicable

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.2 Other information

Solid content (%): 54 wt

Solvent content: Not applicable

Organic solvents: 46.20% by weight

Water: 0.00% by weight

Solvent separation test (%): < 3% by weight (ADR/RID)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No information available.

10.2 Chemical stability

Stable when stored and handled according to the recommended instructions. For further information on proper storage, see Section 7.

10.3 Possibility of hazardous reactions

Keep away from strong acids, strong bases, and strong oxidizing agents to avoid exothermic reactions.

10.4 Conditions to avoid

At high temperatures, hazardous decomposition products may be formed.

10.5 Incompatible materials

No information available.

10.6. Hazardous decomposition products

At high temperatures, hazardous decomposition products may be produced, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Classification according to Regulation (EC) No. 1272/2008
[CLP] There are no data available on the preparation
itself.

11.1 Information on toxicological effects

Acute toxicity, calculated:

ATEmix calculated, oral: >5000 mg/kg ATEmix
calculated, dermal:> 5000 mg/kg
ATEmix calculated, inhalation (dull): 18 mg/l

Acute toxicity:

2-Methoxy-1-methylethyl acetate
oral, LD50, rat:> 5000 mg/kg

n-Butyl acetate
oral, LD50, rat: 14000 mg/kg

2-Butoxy-ethyl acetate
oral, LD50, rat:

SECTION 11: TOXICOLOGICAL INFORMATION

Skin corrosion/irritation; Severe eye irritation: Based on the available data, the classification criteria are not met.

Respiratory/skin sensitization: 2-Methoxy-1-methylethyl acetate Skin:

CMR effects (carcinogenic, mutagenic, and reproductive toxicity) Based on the available data, the classification criteria are not met.

Specific target organ toxicity: Based on available data, the classification criteria are not met. Other observations:

Experience from practical use or in humans:
Inhalation of solvent components above the AGW value can cause health problems such as irritation of the mucous membranes and respiratory organs, damage to the liver, kidneys, and central nervous system. Signs of this include headaches, dizziness, fatigue, muscle weakness, drowsiness, and in severe cases, unconsciousness. loss of consciousness. Solvents can cause some of the above effects through skin absorption. Prolonged and repeated contact with the product leads to loss of skin lipids and may cause non-allergic contact skin damage (contact dermatitis) and/or absorption of harmful substances. Splashes may cause eye irritation and reversible damage.

Summary evaluation of CMR properties: The ingredients of this mixture do not meet the criteria for CMR categories 1A or 1B according to CLP.

Remarks: No information is available on the preparation itself.

SECTION 12: ENVIRONMENTAL INFORMATION

Overall assessment: Classification according to Regulation (EC) No. 1272/2008 [CLP]
No information is available on the preparation itself. Do not allow to enter drains or watercourses.

12.1 Toxicity No toxicological data available. No

Long-term ecotoxicity toxicological data available.

12.2 Persistence and degradability No information available.

12.3 Bioaccumulation potential No information available. No

Bioconcentration factor (BCF) information available.

12.4 Mobility in soil No information is available.

12.5. Results of PBT and vPvB assessment The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, Annex XIII.

12.6. Other adverse effects No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

10.6. Hazardous decomposition products

Proper disposal / product

Recommend Do not allow to enter drains or watercourses. Waste and containers must be disposed of in a safe manner. Disposal must comply with Directive 2008/98/EC on waste and hazardous waste.

Suggested list of waste codes/waste designations in accordance with EAKV

080111	Paint and varnish residues containing organic solvents or other hazardous substances

Packaging recommendation Uncontaminated and completely emptied packaging can be recycled. Containers that have not been emptied properly are hazardous waste.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number: UN 1263

14.2 Proper UN shipping name:

Land transport (ADR/RID):	PAINT ACCESSORIES
Sea transport (IMDG):	PAINT RELATED MATERIAL
Air transport (ICAO-TI / IATA-DGR):	Paint related material

14.3 Transport hazard classes: 3

14.4 Packaging group III

14.5. Environmental hazards

Land transport (ADR/RID):	Not applicable
Marine pollutant:	Not applicable

14.6 Special precautions for the user

Always transport in closed, upright, and secure containers. Ensure that persons transporting the product know what to do in the event of an accident or spill. For information on safe handling, see sections 6 - 8.

Further information Land transport (ADR/RID)

Tunnel restriction code	D/E

Sea transport (IMDG)

EmS No.	F-E, S-E

SECTION 14: TRANSPORT INFORMATION

Air transport (ICAO-TI / IATA-DGR)

14.7 Bulk transport in accordance with Annex II of the MARPOL Convention and the IBC Code — Not applicable

SECTION 15: LEGAL REGULATIONS

15.1. Safety, health, and environmental protection regulations/specific legal provisions for the substance or mixture EU regulations

Directive 2010/75/EU on industrial emissions: VOC value (in g/L): 475

National regulations

Information on restrictions on employment: Observe employment restrictions in accordance with the Maternity Protection Directive (92/85/EEC) for pregnant or breastfeeding women.
Observe employment restrictions in accordance with the Youth Employment Protection Act

Water hazard class (WGK): (94/33/EC). 1

Industrial Safety Regulation (BetrSichV): Liquid and vapor are flammable.

Technical Instructions on Air Quality Control (TA-Luft)

TA-Luft (2002) Chapter 5.2.5 Organic substances Class II: The following values must not be exceeded in the exhaust gas
Mass flow: 0.50 kg/h
or
mass concentration: 0.10 g/m3
must not be exceeded. VOC

Switzerland in %: 46.10

Other regulations, restrictions, and prohibitions

15.2 Substance safety assessment

A substance safety assessment has been carried out for the following substances in this preparation:

EC No. CAS No.	Chemical name	REACH No.
203-603-9 108-65-6	2-methoxy-1-methylethyl acetate	01-2119475791-29
204-658-1 123-86-4	n-Butyl acetate	01-2119485493-29
500-060-2 28182-81-2	Hexamethylene-1,6-diisocyanate homopolymer; aliphatic polyisocyanate	01-2119485796-1
203-933-3 112-07	2-Butoxy-ethyl acetate	01-211975

SECTION 16: OTHER INFORMATION

Full text of classification from Section 3:

Flam. Liq. 3 / H226	Flammable liquids	Flammable liquid and vapor.
STOT SE 3 / H336	Specific target organ toxicity (single exposure)	May cause drowsiness and dizziness.
Acute toxicity 4 / H332	Acute toxicity (inhalation)	Harmful if inhaled.
Skin Sens. 1 / H317	Respiratory or skin sensitization	May cause allergic skin reactions.
STOT SE 3 / H335	Specific target organ toxicity (single exposure)	May cause respiratory irritation.
Acute Tox. 4 / H302	Acute toxicity (oral)	Harmful if swallowed.
Acute Tox. 4 / H312	Acute toxicity (dermal)	Harmful in contact with skin.

Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road (European Agreement concerning the International Carriage of Dangerous Goods by Road))
AGW	Occupational exposure limit value
CAS	Chemicals Abstract Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, mutagenic, and reprotoxic (carcinogenic, mutagenic, toxic to reproduction)
DNEL	Derived No-Effect Level
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air (Technical Instructions of the International Civil Aviation Organization (ICAO) Regulations on the Transport of Dangerous Goods by Air)
IMDG Code	International Maritime Code for Dangerous Goods (International Code for the Carriage of Dangerous Goods by Sea)
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration (protected no-effect concentration)
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals
RID	Regulations concerning the international carriage of dangerous goods by rail (Vorschriften über die internationale Beförderung gefährlicher Güter auf der Schiene)
UN	United Nations
LC	Lethal Concentration
LD	Lethal Dose
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

SECTION 16: OTHER INFORMATION

16.1 Legal disclaimer

This data sheet is based on intensive development work and many years of practical experience. Its contents do not constitute a contractual legal relationship but serve as a guideline.
No guarantee is given for accuracy and completeness. The supplier is not liable for any damage caused by the use of or contact with the product. The processor/purchaser is not released from the obligation to check the product for suitability for the intended application. In addition, our General Terms and Conditions apply.

Further information: Classification according to Regulation (EC) No. 1272/2008 [CLP]

The information in this safety data sheet corresponds to our current state of knowledge and national and EU regulations. The product must not be used for any purpose other than that specified in Chapter 1 without written permission. It is always the responsibility of the user to take all necessary measures to comply with the requirements laid down in local regulations and laws. The information in this safety data sheet describes the safety requirements of our product and does not constitute a guarantee of product properties.