

SAFETY DATA SHEET



1. Identification

Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300
INTERNATIONAL: (703) 527-3887

NON-TRANSPORTATION

Emergency Phone: Call Chemtrec
Information Phone: (844) 646-0545

Product Name: DESMOPHEN 680 BA
Material Number: 04036484
Chemical Family: Polyester Polyol in Organic Solvent
Use: Raw material for coatings, adhesives, sealants, or elastomers in industrial applications

2. Hazards Identification

GHS Classification

Flammable liquids: Category 3
Eye irritation: Category 2A
Specific target organ toxicity - single exposure: Category 3 (Central nervous system)

GHS Label Elements

Hazard pictograms:



Signal word: Warning

Hazard statements: Flammable liquid and vapour.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Precautionary statements: **Prevention:**
Keep away from heat, sparks, open flames, and hot surfaces. - No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical, ventilating and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.

Material Name: DESMOPHEN 680 BA

Material Number: 04036484

Avoid breathing dust, mist, gas, vapors or spray.
Wash skin and face thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear permeation resistant protective gloves and clothing. Wear eye and face protection.

Response:

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a doctor or emergency medical facility (i.e. 911) if you feel unwell.
If eye irritation persists: Get medical attention.
In case of fire: Use dry chemical, carbon dioxide (CO2), foam, or water spray (for large fires) to extinguish.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Disposal:

Dispose of contents and container in accordance with existing federal, state, and local environmental control laws.

3. Composition/Information on Ingredients

Hazardous Components

Concentration	Components	CAS-No.
15 - 40%	n-Butyl Acetate	123-86-4
1 - 3%	1-Butanol	71-36-3

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

4. First Aid Measures

Most Important Symptom(s)/Effect(s)

Acute: Inhalation or ingestion may cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion., Causes serious eye irritation with symptoms of reddening, tearing, swelling, and burning.

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention.

Skin Contact

In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops and persists. Thoroughly clean shoes before reuse. Wash clothing before reuse.

Inhalation

If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respirator. Get medical attention.

Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Firefighting Measures

Suitable Extinguishing Media: All extinguishing media are suitable.

Unsuitable Extinguishing Media No Data Available

Fire Fighting Procedure

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

Special Fire Hazards

Cool containers/tanks with water spray.

Hazardous Decomposition Products

By Fire and Thermal Decomposition: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Other undetermined compounds

Unusual Fire/Explosion Hazards

Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. If this polyol is combined with phosphorus compounds, trimethylolpropanephosphate (TMPP), a known neurotoxin, can be given off in the event of a fire. Therefore, we do not recommend mixing this polyol with phosphorus compounds.

6. Accidental Release Measures**Spill and Leak Procedures**

Cleanup personnel must use appropriate personal protective equipment. Evacuate and keep unnecessary people out of spill area. Remove all sources of ignition, including flames, heat, and sparks. Dike or dam spilled material and control further spillage, if possible. Do not allow spilled material or wash water to enter sewers, surface waters, or groundwater systems. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Use grounded or non-sparking tools and equipment. Wash spill area with soap and water.

7. Handling and Storage**Handling/Storage Precautions**

Remove all sources of ignition, including flames, heat, and sparks. Take precautionary measures against static discharges. Ground and bond containers and equipment before transferring to avoid static sparks. Do not breathe vapours or spray mist. Avoid contact with eyes. Avoid contact with skin or clothing. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use. Protect from moisture. Protect from freezing.

Storage Period:

Material Name: DESMOPHEN 680 BA

Material Number: 04036484

6 Months: after receipt of material by customer

Storage Temperature

Minimum: 0 °C (32 °F)
Maximum: 30 °C (86 °F)

Storage Conditions

Use spark-proof tools and explosion-proof equipment. Store separate from food products.

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Substances to Avoid

Oxidizing agents, Reducing agents, Peroxides

8. Exposure Controls/Personal Protection

The recommendations in this section should not be a substitute for a personal protective equipment (PPE) assessment performed by the employer as required by 29 CFR 1910 Subpart I.

Exposure Limits

n-Butyl Acetate (123-86-4)

US. ACGIH Threshold Limit Values, as amended
Time weighted average 50 ppm

US. ACGIH Threshold Limit Values, as amended
Short term exposure limit 150 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Permissible exposure limit 150 ppm, 710 mg/m³

1-Butanol (71-36-3)

US. ACGIH Threshold Limit Values, as amended
Time weighted average 20 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Permissible exposure limit 100 ppm, 300 mg/m³

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

Industrial Hygiene/Ventilation Measures

General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent the build up of explosive atmospheres and to prevent off gases from entering the work place.

Respiratory Protection

Respiratory protection is recommended in insufficiently ventilated working areas and during heating or spraying. For components with occupational exposure limits, when workers are facing concentrations

above those limits, they must use appropriate certified respirators.

Hand Protection

Ensure gloves remain in good condition during use and replace if any deterioration is observed.

Permeation resistant gloves., Butyl rubber gloves., Nitrile rubber gloves., Neoprene gloves

Eye Protection

Chemical resistant goggles must be worn., Chemical safety goggles in combination with a full face shield if a splash hazard exists.

Skin Protection

Permeation resistant clothing, Gloves, long sleeved shirts and pants.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and Chemical Properties

State of Matter:	liquid
Color:	Yellow
Odor:	solvent-like
Odor Threshold:	No Data Available
pH:	No Data Available
Freezing Point:	No Data Available
Boiling Point:	127 °C (260.6 °F) @ 1,013 hPa
Flash Point:	ca. 32 °C (89.6 °F) (DIN 53213)
Evaporation Rate:	No Data Available
Lower Explosion Limit:	1.2 %(V)
Upper Explosion Limit:	7.5 %(V)
Vapor Pressure:	12 mbar @ 20 °C (68 °F) For a solvent.
Vapor Density:	No Data Available
Density:	ca. 1.08 g/cm ³ @ 20 °C (68 °F) (DIN 51757)
Relative Vapor Density:	No Data Available
Specific Gravity:	Approximately 1.08 @ 20 °C (68 °F) (DIN 53217/3)
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	ca. 370 °C (698 °F)
Decomposition Temperature:	No Data Available
Dynamic Viscosity:	3,000 mPa.s @ 23 °C (73.4 °F) (DIN EN ISO 3219/A.3)
Kinematic Viscosity:	No Data Available
Bulk Density:	1,080 kg/m ³
Self Ignition:	not applicable

10. Stability and Reactivity

Hazardous Reactions

Hazardous polymerisation does not occur.

Stability

Material Name: DESMOPHEN 680 BA

Material Number: 04036484

Stable

Materials to Avoid

Oxidizing agents, Reducing agents, Peroxides

Conditions to Avoid

Heat, flames and sparks.

Hazardous Decomposition Products

By Fire and Thermal Decomposition: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Other undetermined compounds

11. Toxicological Information

Likely Routes of Exposure:

Skin Contact
Eye Contact
Ingestion
Inhalation

Health Effects and Symptoms

Acute: Inhalation or ingestion may cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion., Causes serious eye irritation with symptoms of reddening, tearing, swelling, and burning.

Chronic: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal.

Toxicity Data for: DESMOPHEN 680 BA

Data on the product is not available.

Please find the data available for the components.

Acute Oral Toxicity

Acute toxicity estimate: > 5,000 mg/kg (Calculation method)

Acute Dermal Toxicity

Acute toxicity estimate: > 5,000 mg/kg (Calculation method)

Toxicity Data for: n-Butyl Acetate

Acute Oral Toxicity

LD50: 12,789 mg/kg (rat, male) (OECD Test Guideline 423)

LD50: 10,760 mg/kg (rat, female) (OECD Test Guideline 423)

Acute Inhalation Toxicity

LC50: > 21 mg/l, 4 h, vapour (rat) (OECD Test Guideline 403)

Acute Dermal Toxicity

LD50: 14,112 mg/kg (rabbit, male/female) (OECD Test Guideline 402)
assuming density = 0.882 g/cm³

Skin Irritation

Material Name: DESMOPHEN 680 BA

Material Number: 04036484

Human experience, Non-irritating

Eye Irritation

rabbit, OECD Test Guideline 405, slight irritant

Sensitization

dermal: non-sensitizer (Guinea pig, Maximization Test)

dermal: non-sensitizer (Human, Magnusson/Kligmann (Maximization Test))

Repeated Dose Toxicity

13 Weeks, inhalation: NOAEL: 500 ppm, (Rat,)

Chronic exposure damages the brain and the central nervous system.

13 weeks, inhalation (vapour): NOAEL: 500, (rat, male/female, 6 hours a day, 5 days a week)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Cytogenetic assay: negative (other mammalian cell line, Metabolic Activation: without)

Chromosome aberration test: negative (Chinese hamster lung cells, Metabolic Activation: without)

Genetic Toxicity in Vivo:

In vivo micronucleus test: negative (Mouse, male/female, Oral)

Studies of a comparable product.

negative

Toxicity to Reproduction/Fertility

Two-generation study, Inhalative, daily, (rat, male/female) NOAEL (parental): 750 ppm, NOAEL (F1): 750 ppm, NOAEL (F2): 750 ppm

Developmental Toxicity/Teratogenicity

Rat, Female, inhalation, gestation days 1-16, 7 hrs/day, NOAEL (teratogenicity): 1,500 ppm, No Teratogenic effects observed at doses tested. rabbit, female, inhalation, gestation days 1-19, 7 hrs/day, NOAEL (teratogenicity): 1500 ppm, No Teratogenic effects observed at doses tested. Rat, Female, inhalation, 7 hrs/day, NOAEL (teratogenicity): 1,500 ppm, NOAEL (maternal): 1500 ppm

Other Relevant Toxicity Information

May cause drowsiness or dizziness.

Toxicity Data for: 1-Butanol

Acute Oral Toxicity

LD50: 790 mg/kg (rat)

Acute Inhalation Toxicity

LC0: > 17.76 mg/l, 4 h, vapour (rat, male/female) (OECD Test Guideline 403)

Acute Dermal Toxicity

LD50: 3,430 mg/kg (rabbit, male)

Skin Irritation

rabbit, Draize, irritating

Human, irritating

Eye Irritation

rabbit, OECD Test Guideline 405, Corrosive

Repeated Dose Toxicity

92 Days, inhalation: NOAEL: 0.03 ppm, (Rat)

Chronic exposure damages the brain and the central nervous system.

13 weeks, Oral: NOAEL: 125 mg/kg, LOAEL: 500 mg/kg, (rat, male/female, daily)

Mutagenicity

Genetic Toxicity in Vitro:

Micronucleus test: negative (Metabolic Activation: without)

Mammalian cell - gene mutation assay: negative (Metabolic Activation: with/without)

Toxicity to Reproduction/Fertility

Reproductive effects have been observed in animal studies.

Developmental Toxicity/Teratogenicity

Fetotoxicity has been observed in animal studies. rat, Oral, 20 days, NOAEL (teratogenicity): 5,654 mg/kg, NOAEL (maternal): 1,454 mg/kg,

Other Relevant Toxicity Information

May cause drowsiness or dizziness.

May cause irritation of respiratory tract.

Carcinogenicity:

No carcinogenic substances as defined by IARC, NTP and/or OSHA

12. Ecological Information**Ecological Data for: DESMOPHEN 680 BA**

Data on the product is not available. Please find the data available for the components.

Ecological Data for n-Butyl Acetate**Biodegradation**

aerobic, 98 %, Exposure time: 28 Days

Biochemical Oxygen Demand (BOD)

1,020 mg/g

Chemical Oxygen Demand (COD)

2,320 mg/g

Theoretical Biological Oxygen Demand (ThBOD)

2,207 mg/g

Bioaccumulation

ca. 4 - 14 BCF

Acute and Prolonged Toxicity to Fish

LC50: 18 mg/l (Fathead minnow (Pimephales promelas), 96 h)

Material Name: DESMOPHEN 680 BA

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LC50: 185 mg/l (Silverside Minnow (*Menidia peninsulae*), 96 h)

Acute Toxicity to Aquatic Invertebrates

EC50: 72.8 mg/l (Water flea (*Daphnia magna*), 48 h)

EC50: 32 mg/l (brine shrimp (*Artemia salina*), 48 h)

Toxicity to Aquatic Plants

EC50: 670 mg/l, End Point: growth (Cryptomonad (*Chilomonas paramecium*), 48 h)

674.7 mg/l, End Point: growth (Green algae (*Scenedesmus subspicatus*), 72 h)

Toxicity to Microorganisms

EC50: 959 mg/l, (*Pseudomonas putida*, 18 h)

Ecological Data for 1-Butanol

Biodegradation

Aerobic, 98 %, Exposure time: 19 Days

Readily biodegradable.

Biochemical Oxygen Demand (BOD)

5 Days, 14 mg/l

Chemical Oxygen Demand (COD)

84 mg/g

Acute and Prolonged Toxicity to Fish

LC50: 1,740 mg/l (Fathead minnow (*Pimephales promelas*), 96 h)

Acute Toxicity to Aquatic Invertebrates

EC50: 1,983 mg/l (Water flea (*Daphnia magna*), 48 h)

Toxicity to Aquatic Plants

EC50: > 500 mg/l, (Green algae (*Scenedesmus subspicatus*), 96 h)

Toxicity to Microorganisms

EC50: 4,400 mg/l, (*Pseudomonas putida*, 17 h)

13. Disposal Considerations

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions

Do not heat or cut container with electric or gas torch. Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Label precautions also apply to this container when empty.

14. Transportation Information

Land transport (DOT)

Proper Shipping Name:

Resin solution (contains N-Butyl Acetate)

Material Name: DESMOPHEN 680 BA

Material Number: 04036484

Hazard Class or Division: 3
UN/NA Number: UN1866
Packaging Group: III
Hazard Label(s): FLAMMABLE LIQUID

RSPA/DOT Regulated Components:

n-Butyl Acetate

Reportable Quantity: 8397 kg (18512 lb)

Sea transport (IMDG)

Proper Shipping Name: RESIN SOLUTION (contains N-Butyl Acetate)
Hazard Class or Division: 3
UN number: UN1866
Packaging Group: III
Hazard Label(s): FLAMMABLE LIQUIDS

Air transport (ICAO/IATA)

Proper Shipping Name: Resin solution (contains N-Butyl Acetate)
Hazard Class or Division: 3
UN number: UN1866
Packaging Group: III
Hazard Label(s): FLAMMABLE LIQUIDS

15. Regulatory Information

United States Federal Regulations

US. Toxic Substances Control Act: To the best of our knowledge, this material is not included in the Toxic Substances Control Act (TSCA) Inventory, and is defined as a new chemical substance which cannot be imported or manufactured for commercial purposes without complying with the Pre-manufacture Notice (PMN) requirements codified at 40CFR Part 720. Therefore, we are providing you a small quantity (as defined at 40CFR Part 720.36 (a) (1)) of this product with the understanding it is to be used solely in the course of Research and Development (R&D), as defined in Section 5 (h) (3) of TSCA and 40 CFR Part 720.

No substances are subject to TSCA 12(b) export notification requirements.

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:

n-Butyl Acetate Reportable quantity: 5000 lbs
1-Butanol Reportable quantity: 5000 lbs

SARA Section 311/312 Hazard Categories:

Refer to hazard classification information in Section 2.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:

1-Butanol

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste., In its purchased form, this product meets the criteria of ignitability under 40 CFR 261.21(a), and, when discarded in that form, should be managed as a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<u>Concentration</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyester Polyol	CAS# is a trade secret
15 - 40%	n-Butyl Acetate	123-86-4
1 - 3%	1-Butanol	71-36-3

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

<u>Concentration</u>	<u>Components</u>	<u>CAS-No.</u>
15 - 40%	n-Butyl Acetate	123-86-4
1 - 3%	1-Butanol	71-36-3

California Proposition 65 List:

None.

CFATS (Chemical Facility Anti-Terrorism Standards) Chemicals

To the best of our knowledge, this product does not contain Appendix A Chemicals of Interest (COI), at or above the Screening Threshold Quantity (STQ), as defined by the Department of Homeland Security Chemical Facility Anti-terrorism Standard (CFATS, 6 CFR Part 27).

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

16. Other Information

The method of hazard communication for Covestro LLC is comprised of product labels and safety data sheets. Safety data sheets for all of our products and general product declarations are available for download at www.productsafetyfirst.covestro.com.

Contact: Product Safety Department
Telephone: (412) 413-2835
Version Date: 03/06/2020
SDS Version: 4.3

Information contained in this SDS is believed to be accurate but is furnished without warranty, express or implied, including warranties of merchantability or fitness for a particular purpose. The information relates only to the specific material designated herein. Covestro LLC. assumes no legal responsibility for use of or reliance upon the information in this SDS and such information shall in no case be considered a part of our terms and conditions of sale. The user is responsible for determining whether the Covestro product is

suitable for user's method of use or application. Covestro is not liable for any failure to observe the precautionary measures described in this SDS or for any misuse of the product.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.