SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Dynasolve® 180

Version	Revision Date:	SDS Number:	Date of first issue:
1.0	10/11/2024	70MDGM661426	10/11/2024

SECTION 1. IDENTIFICATION

Product name : Dynasolve® 180

Product number : 661426

Manufacturer or supplier's details

Company : Versum Materials US, LLC 8555 South River Parkway Tempe, AZ 85284-2601Exporter EIN No. 47-5632014
www.emdgroup.com/electronics Telephone: 800 837 2724

Emergency telephone : 1-800-424-9300 CHEMTREC (USA) 1-703-741-5970
CHEMTREC (International) 24 Hours/day; 7 Days/week

Recommended use of the chemical and restrictions on use

Recommended use : Polymer Remover

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 4

Skin irritation : Category 2

Eye irritation : Category 2A

Reproductive toxicity : Category 1B

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P261 Avoid breathing mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	CAS-No.	Concentration (% w/w)
Methyl-2-pyrrolidinone, 1-	872-50-4	100

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled	:	fresh air. Consult doctor if feeling unwell.
In case of skin contact	:	Wash off immediately with plenty of water for at least 15 minutes. Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical treatment immediately. Remove contact lenses.
If swallowed	:	immediately make victim drink water (two glasses at most). Consult a physician. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	irritant effects Cough Shortness of breath
Notes to physician	:	No information available.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water Dry powder Foam Carbon dioxide (CO2)
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:
Carbon monoxide
Nitrogen oxides (NOx)

Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
Suppress (knock down) gases/vapors/mists with a water spray jet.

Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:
Do not breathe vapors, aerosols.
Avoid substance contact.
Ensure adequate ventilation.
Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
Advice for emergency responders:
Protective equipment see section 8.
If possible, stop flow of product.

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up : Observe possible material restrictions (see sections 7 and 10).
Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Advice on safe handling : Emergency showers and eye wash stations should be readily accessible. Empty containers may contain residue which can be dangerous – do not pressurize, cut, weld, drill, grind and also do not expose such containers to heat, flame, sparks, or other ignition sources. Observe label precautions.

Conditions for safe storage : Store in original container.

Further information on storage conditions : Keep locked up or in an area accessible only to qualified or authorized persons. Tightly closed. Risks from decomposition products: see section 10

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methyl-2-pyrrolidinone, 1-	872-50-4	TWA	15 ppm 60 mg/m3	US WEEL
		STEL	30 ppm 120 mg/m3	US WEEL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methyl-2-pyrrolidinone, 1-	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after exposure ceases)	100 mg/l	ACGIH BEI

Engineering measures : Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7

Personal protective equipment

Respiratory protection : Respirator with filter for organic vapor
Wear appropriate respirator when ventilation is inadequate.
required when vapours/aerosols are generated.

Hand protection

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Protective measures : Wear suitable protective clothing, gloves and eye/face protection.

Eye protection : Safety glasses

Body Protection	:	Flame retardant protective clothing If there is any possibility of direct contact or exposure, wear chemical resistant protective clothing.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	Colorless - Light yellow.
Odor	:	slight, amine-like
Odor Threshold	:	No data available
pH	:	No data available
Melting point	:	-11 °F / -24 °C (1,013 hPa)
Boiling point	:	399.99 °F / 204.44 °C (1,013 hPa)
Flammability (solid, gas)	:	No data available
Decomposition temperature	:	No data available
Flash point	:	91 °C(1,013 hPa) Method: DIN 51758, Pensky-Martens closed cup
Auto-ignition temperature	:	473 °F / 245 °C (1,013 hPa) Method: DIN 51794
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 9.5 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1.3 %(V)

Vapor pressure	:	0.32 hPa (68 °F / 20 °C) Method: OECD Test Guideline 104
Relative vapor density	:	3.42
Relative density	:	No data available
Density	:	1.03 g/cm3 (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	1,000 g/l (68 °F / 20 °C)
Partition coefficient: n-octanol/water	:	log Pow: -0.46 (77 °F / 25 °C) Method: OECD Test Guideline 107 Bioaccumulation is not expected.
Evaporation rate	:	No data available
Viscosity		
Viscosity, dynamic	:	1.80 mPa.s (68 °F / 20 °C)
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	none
Molecular weight	:	99.13 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	no information available
Conditions to avoid	:	Strong heating.
Incompatible materials	:	Oxidizing agents

Hazardous decomposition products	:	Ammonia Nitrogen oxides (NOx) Nitrogen oxide can react with water vapors to form corrosive nitric acid. Carbon monoxide Carbon dioxide (CO2) in the event of fire: See section 5.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Eye contact
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, male and female): 4,150 mg/kg Method: OECD Test Guideline 401 Remarks: (ECHA) Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.1 mg/l Exposure time: 4 h Test atmosphere: aerosol Method: OECD Test Guideline 403 GLP: yes Remarks: (ECHA) Assessment: The substance or mixture has no acute inhalation toxicity Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg Method: OECD Test Guideline 402 Remarks: (ECHA) Assessment: The substance or mixture has no acute dermal toxicity Symptoms: Skin irritation

Skin corrosion/irritation

Product:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Skin irritation
GLP	:	yes
Remarks	:	(ECHA)

Serious eye damage/eye irritation

Product:

Species	:	Rabbit
Result	:	irritating
Method	:	OECD Test Guideline 405
Remarks	:	(ECHA)

Respiratory or skin sensitization

Product:

Routes of exposure	:	Skin
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Not a skin sensitizer.
Remarks	:	(ECHA)

Test Type	:	Patch test:
Routes of exposure	:	Skin
Species	:	Human
Result	:	negative
Remarks	:	(IUCLID)

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes
Remarks: (ECHA)

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes
Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay
Test system: mammalian cells
Method: OECD Test Guideline 482
Result: negative
GLP: yes
Remarks: (ECHA)

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes
Remarks: (ECHA)

Test Type: Chromosome aberration test
Species: Chinese hamster (male and female)
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative
GLP: yes
Remarks: (ECHA)

Carcinogenicity

Product:

No data available

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT-single exposure

Product:

Target Organs : Respiratory system
Assessment : May cause respiratory irritation.

STOT-repeated exposure

Product:

No data available

Aspiration toxicity

Product:

No data available

Further information

Product:

Remarks	:	Other dangerous properties can not be excluded. This substance should be handled with particular care.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l Exposure time: 96 h Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 24 h Remarks: (ECHA)
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 12.5 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 600 mg/l Exposure time: 0.5 h Method: ISO 8192

Persistence and degradability

Product:

Biodegradability	:	Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable.

Biodegradation: 73 %
Exposure time: 28 d

Biochemical Oxygen Demand (BOD) : 1,100 mg/g
Incubation time: 5 d
Remarks: (Lit.)

Chemical Oxygen Demand (COD) : 1,600 mg/g
Remarks: (Lit.)

BOD/ThOD : 99 %
Remarks: (IUCLID)

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No ecological problems are to be expected when the product is handled and used with due care and attention.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging : When discarding an empty container, the contaminated to the inside is removed completely and it discards according to your local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UN number	:	Not dangerous goods
Proper shipping name	:	Not dangerous goods
Class	:	Not dangerous goods
Packing group	:	Not dangerous goods
Marine pollutant	:	Not dangerous goods

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR Road
Not regulated as a dangerous good

Special precautions for user

Remarks	:	Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Methyl-2-pyrrolidinone, 1-	872-50-4	>= 90 - <= 100 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

Methyl-2-pyrrolidinone, 1- 872-50-4

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Methyl-2-pyrrolidinone, 1- 872-50-4

TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
Methyl-2-pyrrolidinone, 1- 872-50-4

The ingredients of this product are reported in the following inventories:

TSCA : All substance listed on the TSCA Active Inventory

DSL : All components of this product are on the Canadian DSL

SECTION 16. OTHER INFORMATION

Revision Date : 10/11/2024

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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