

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Date of issue: 08/04/2011 Revision date: 31/05/2022 Supersedes: 04/08/2016

DLM-1988

Version: 4.0

SECTION 1. Identification of the st	ubstance/mixture and of the company/undertaking	
1.1. Product identifier		
Product form	: Substance	
Substance name	: N-METHYL-2-PYRROLIDINONE-D9 (D, 99%)	
EC Index-No.	: 606-021-00-7 (Unlabeled)	
EC-No.	: 212-828-1 (Unlabeled)	
CAS-No.	: 185964-60-7	
Product code	: DLM-1988	
Formula	: CD3NCO(CD2)2CD2	
Synonyms	: N-Methyl-2-pyrrolidone. 1-Methyl-2-pyrrolidone. NMP. M-PYROL.	
1.2. Relevant identified uses of the su	bstance or mixture and uses advised against	
1.2.1. Relevant identified uses		
Main use category	: Professional use	
Industrial/Professional use spec	: For professional use only	
1.2.2. Uses advised against		
No additional information available		
1.3. Details of the supplier of the safe	ty data sheet	
Cambridge Isotope Laboratories, Inc. 50 Frontage Road Andover, MA 01810 USA USA: 1-800-322-1174 Int: 1-978-749-8000 <u>cilsales@isotope.com</u> www.isotope.com		
Emergency telephone number		
Emergency numbers:		
Chemtrec: 1-800-424-9300 (24 hours) International: 1-703-741-5970 (24 hours)		
SECTION 2: Hazards identification		
2.1. Classification of the substance or mixture		
Classification according to Regulation (EC Skin Irrit. 2 H315 Eye Irrit. 2 H319 Repr. 1B H360 STOT SE 3 H335) No. 1272/2008 [CLP]	
Full text of hazard classes and H-statements :	see section 16	
Classification according to Directive 67/548	8/EEC [DSD] or 1999/45/EC [DPD]	

Xi; R36/37/38 Repr.Cat.1; R60 Repr.Cat.1; R61

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 4 H227 Skin Irrit. 2 H315 Eye Irrit. 2A H319 Repr. 1B H360 STOT SE 3 H335

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

2.2. Label elements	
Labeling according to Regulation (EC) N	o. 1272/2008 [CLP]
Hazard pictograms (CLP)	
	GHS08 GHS07
Signal word (CLP)	: Danger
Hazard statements (CLP)	 H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation H360 - May damage fertility. May damage the unborn child. (in contact with skin, if inhaled, if swallowed)
Precautionary statements (CLP)	 P261 - Avoid breathing dust, gas, fume, mist, spray, vapors. P264 - Wash Both hands thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P302+P352 - IF ON SKIN: Wash with plenty of water. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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.
GHS-US labeling	
Hazard pictograms (GHS-US)	HS08 GHS07
Signal word (GHS-US)	: Danger
Hazard statements (GHS-US)	 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 (Dermal, Inhalation, oral)
Precautionary statements (GHS-US)	 P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, open flames, sparks No smoking. P261 - Avoid breathing dust, fume, gas, mist, spray, vapors. P264 - Wash Both hands thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P302+P352 - If on skin: Wash with plenty of water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contal lenses, if present and easy to do. Continue rinsing P308+P313 - If exposed or concerned: Get medical advice/attention. P312 - Call a poison center or doctor if you feel unwell P321 - Specific treatment (see Hazard pictograms (CLP) on this label) P332+P313 - If skin irritation occurs: Get medical advice/attention. P362 - Take off contaminated clothing and wash before reuse. P370+P378 - In case of fire: Use Alcohol resistant foam, Carbon dioxide, Dry chemical, Watel spray to extinguish. P403+P235 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up.

2.3. **Other hazards**

No additional information available

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 3: Composition/Information	on ingredients		
3.1. Substances			
Name	Product identifier	%	Classification according to Directive 67/548/EEC
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%)	(CAS-No.) 185964-60-7 (EC-No.) 212-828-1 (Unlabeled) (EC Index-No.) 606-021-00-7 (Unlabeled)	100	Repr.Cat.1; R60 Repr.Cat.1; R61 Xi; R36/38
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%)	(CAS-No.) 185964-60-7 (EC-No.) 212-828-1 (Unlabeled) (EC Index-No.) 606-021-00-7 (Unlabeled)	100	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 1B, H360 STOT SE 3, H335

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (Main constituent)	(CAS-No.) 185964-60-7	100	Flam. Liq. 4, H227 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Repr. 1B, H360 STOT SE 3, H335

Full text of H-phrases: see section 16

3.2. Mixtures		
Not applicable		
SECTION 4: First aid measures		
4.1. Description of first aid measures		
First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.	
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.	
First-aid measures after skin contact	: Wash with soap and plenty of water. Consult a physician.	
First-aid measures after eye contact	: Flush eye with water for 15 minutes. Get medical attention.	
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.	
4.2. Most important symptoms and effe	cts, both acute and delayed	
Symptoms/effects	: May damage fertility, May damage the unborn child. (in contact with skin, if inhaled, if swallowed).	
Symptoms/effects after inhalation	: May cause respiratory irritation.	
Symptoms/effects after skin contact	: May be harmful if absorbed through the skin. Causes skin irritation.	
Symptoms/effects after eye contact	: Causes serious eye irritation.	
Symptoms/effects after ingestion	: May be harmful if swallowed.	
4.3. Indication of any immediate medica	al attention and special treatment needed	
No additional information available		
SECTION 5: Firefighting measures		

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5.1.	Extinguishing media		
Suitable	extinguishing media	: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.	
5.2.	Special hazards arising from the substance or mixture		
Fire haz	zard	: Combustible liquid.	
5.3.	Advice for firefighters		
5 5		: Use water spray to cool unopened containers.: Do not enter fire area without proper protective equipment, including respiratory protection.	

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

26, 2012 / Rules and Regulations				
SECTION 6: Accidental release measures				
6.1. Personal precautions	s, protective equ	ipment and emergency procedures		
6.1.1. For non-emergency procedures		: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.		
6.1.2. For emergency respo	onders			
No additional information availab	le			
6.2. Environmental preca	utions			
Prevent further leakage or spillag		. Do not let product enter drains.		
6.3. Methods and materia	l for containmen	t and cleaning up		
For containment		•	-combustible absorbent material. Disposal should be in	
		accordance with applicable Federal, S		
Methods for cleaning up		 For large spills, confine the spill in a dike and charge it with wet sand or earth for subsequent safe disposal. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. 		
6.4. Reference to other se	ections			
No additional information availab	ble			
SECTION 7: Handling an	d storage			
7.1. Precautions for safe				
Additional hazards when process		· Avoid contact with skin and eves Avo	id inhalation of vapour or mist. Keep away from sources	
of ignition - No smoking. Take measures to prevent build up of electrostatic charge.		res to prevent build up of electrostatic charge.		
Hygiene measures		: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.		
7.2. Conditions for safe storage, including any incompatibilities				
Echnical measures : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.				
Storage conditions		: Store at room temperature away from light and moisture.		
7.3. Specific end use(s)				
No additional information availab	le			
SECTION 8: Exposure co	ontrols/perso	nal protection		
8.1. Control parameters				
N-METHYL-2-PYRROLIDINON		195064 60 7)		
Italy - Portugal - USA ACGIH			10.0000000 ppm Skip	
USA OSHA	ACGIH TWA (pp OSHA PEL (TW	,	10.00000000 ppm Skin 10 ppm Skin.	
N-METHYL-2-PYRROLIDINON	NE-D9 (D, 99%) (*	185964-60-7)		
DNEL/DMEL (Workers)				
Acute - systemic effects, derma		208 mg/kg bodyweight/day		
Acute - systemic effects, inhala		80 mg/m ³		
Long-term - systemic effects, dermal		19.8 mg/kg bodyweight/day		
	Long-term - systemic effects, inhalation 40 mg/m ³			
PNEC (Water)				
PNEC aqua (freshwater)		0.25 mg/l		
PNEC aqua (marine water) 0.025 mg/l				
PNEC (Sediment)				
· · · · · · · · · · · · · · · · · · ·	PNEC sediment (freshwater) 0.805 mg/kg dwt			
PNEC (Soil)				
	PNEC soil 0.138 mg/kg dwt			
PNEC (STP)				
PNEC sewage treatment plant		10 mg/l		
PNEC		: 5 mg/l		

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

8.2. Exposure controls	
Personal protective equipment	: Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.
Hand protection	: Wear suitable protective clothing and gloves.
Eye protection	: Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection	 Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	: When appropriate, use NIOSH/CEN approved respirator.
SECTION 9: Physical and c	hemical properties
9.1. Information on basic phy	sical and chemical properties
Physical state	: Liquid
Appearance	: Liquid
Molecular mass	: 108.19 g/mol (Labeled)
Color	Colorless

Color	: Colorless
Odor	: No data available
Odor threshold	: No data available
рН	: 7.7 - 8
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -24 °C (-11 °F)
Freezing point	: No data available
Boiling point	: 202 °C (396 °F). 81 - 82 °C (178-180 °F) at 13 hPa (10 mmHg).
Flash point	: 91 °C (196 °F) - closed cup
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 0.39 - 0.43 hPa (0.29 - 0.32 mmHg) at 20 °C (68 °F). 1.32 hPa (0.99 mmHg) at 40 °C (104 °F)
Relative vapor density at 20 °C	: 3.42 - (Air = 1.0)
Relative density	: No data available
Specific gravity / density	: 1.028 g/mL at 25 °C (77 °F)
Solubility	: No data available
Log Pow	: -0.46
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: 1.3 - 9.5 % (V)
0.2 Other information	

9.2. **Other information**

No additional information available

SECTION 10: Stability and reactivity
10.1. Reactivity
No additional information available
10.2. Chemical stability
Stable if stored under recommended conditions.
10.3. Possibility of hazardous reactions
No additional information available
10.4. Conditions to avoid
Heat, flames and sparks.
10.5. Incompatible materials
Strong acids, Strong oxidizing agents. Strong reducing agents.

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.6. Hazardous decomposition products				
Formed under fire conditions: Carbon oxides, Nitrogen oxides.				
SECTION 11: Toxicological information				
11.1. Information on toxicological effects				
Acute toxicity	Not classified			
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7)				
LD50 oral rat	3914 mg/kg			
LD50 dermal rabbit	8000 mg/kg			
LC50 inhalation rat (ppm)	> 5100 ppm/4h			
ATE CLP (oral)	3914.000 mg/kg body weight			
ATE CLP (dermal)	8000.000 mg/kg body weight			
Skin corrosion/irritation	: Causes skin irritation.			
	pH: 7.7 - 8			
Serious eye damage/irritation	: Causes serious eye irritation.			
	Eyes - Rabbit - Eye irritation			
	pH: 7.7 - 8			
Respiratory or skin sensitization	Not available			
Germ cell mutagenicity	Not available			
Carcinogenicity	Not classified			
Reproductive toxicity	Damage to fetus possible. Suspected human reproductive toxicant.			
Specific target organ toxicity – single exposure	: May cause respiratory irritation.			
	Inhalation- May cause respiratory irritation.			
Specific target organ toxicity – repeated exposure	Not classified			
Aspiration hazard	Not classified			
Potential Adverse human health effects and symptoms	This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Vomiting. Diarrhea. Abdominal pain.			
Symptoms/effects after inhalation	: May cause respiratory irritation.			
Symptoms/effects after skin contact	: May be harmful if absorbed through the skin. Causes skin irritation.			
Symptoms/effects after eye contact	: Causes serious eye irritation.			
Symptoms/effects after ingestion	: May be harmful if swallowed.			

SECTION 12: Ecological information				
12.1. Toxicity				
Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.			
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7)				
LC50 fish 1	> 500 mg/l Leuciscus idus (Golder orfe) - 96 h			
LCE0 other equatio organisms 1	1000 mg/l other fish 06 h			

LC50 other aquatic organisms 1	4000 mg/l other fish - 96 h
EC50 Daphnia 1	> 1000 mg/l Daphnia magna (Water flea) - 24 h
LC50 fish 2	> 9000 mg/l bacteria

12.2. Persistence and degradability			
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7)			
Persistence and degradability	Biodegradability	Result: 90 % - Readily biodegradable.	
12.3. Bioaccumulative potential			
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7)			
Log Pow	-0.46		
12.4. Mobility in soil			
No additional information available			
12.5. Results of PBT and vPvB assessment			

No additional information available

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

12.6. Other adverse effects	
Other adverse effects	: Avoid release to the environment. Disposal must be done according to official regulations.
SECTION 13: Disposal consideration	ns
13.1. Waste treatment methods	
Regional legislation (waste)	 Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.
SECTION 14: Transport information	
In accordance with ADR / RID / IMDG / IATA / A	DN
14.1. UN number	
UN-No.(DOT)	: NA1993
DOT NA no.	NA1993
DOT NATIO.	
14.2. UN proper shipping name	
Proper Shipping Name (DOT)	: Combustible liquid, n.o.s.
DOT Symbols	: D - Proper shipping name for domestic use only, or to and from Canada,G - Identifies PSN requiring a technical name
Packing group (DOT)	: III - Minor Danger
DOT Special Provisions (49 CFR 172.102)	 IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T1 - 1.5 178.274(d)(2) Normal
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 241
Marine pollutant	: No
14.3. Additional information	
Other information	: No supplementary information available.
Special transport precautions	: IMDG/IATA - Not dangerous goods.
Overland transport	
Hazard labels (ADR)	: 3 - Flammable liquids

Transport by sea

: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a DOT Vessel Stowage Location passenger vessel. MFAG-No : 127;128 Air transport DOT Quantity Limitations Passenger aircraft/rail : 60 L (49 CFR 173.27) DOT Quantity Limitations Cargo aircraft only (49 : 220 L CFR 175.75) **Civil Aeronautics Law** : Flammable liquids

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

14.4.	Environmental hazards	
Other in	formation	: No supplementary information available.
14.5.	Special precautions for user	
Special transport precautions		: IMDG/IATA - Not dangerous goods.

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

Not applicable

SECTION 15: Regulatory information		
15.1. US Federal regulations		
N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7)		
SARA Section 302 Threshold Planning Quantity (TPQ)	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302	
SARA Section 311/312 Hazard Classes	Fire hazard Delayed (chronic) health hazard	
SARA Section 313 - Emission Reporting	Subject to reporting requirements of United States SARA Section 313	
15.2. International regulations		

CANADA

N-METHYL-2-PYRROLIDINONE-D9 (D, 99%) (185964-60-7) Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

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N-METHYL-2-PYRROLIDINONE-D9 (D, 99%)(185964-60-7)		
U.S California - Proposition 65 - Carcinogens List	No	
U.S California - Proposition 65 - Developmental Toxicity	Yes	
U.S California - Proposition 65 - Reproductive Toxicity - Female	Yes	
U.S California - Proposition 65 - Reproductive Toxicity - Male	Yes	
State or local regulations	RTK - U.S Massachusetts - Right To Know List RTK - U.S Pennsylvania - RTK (Right to Know) List RTK - U.S New Jersey - Right to Know Hazardous Substance List	

SECTION 16: Other information

Other information

: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Repr. 1B	Reproductive toxicity Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child
R36/38	Irritating to eyes and skin
R60	May impair fertility
R61	May cause harm to the unborn child
Xi	Irritant

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

NFPA health hazard	: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
NFPA fire hazard	: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.
Hazard Rating	
Health	: 2 Moderate Hazard - Temporary or minor injury may occur
Flammability	: 2 Moderate Hazard
Physical	: 0 Minimal Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product