

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%)

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: 11/04/2014 Revision date: 27/07/2022 Supersedes: 07/10/2016 Version: 4.0

CDLM-9307

SECTION 1: Identification of the	substance/mixture and of the company/undertaking	
1.1. Product identifier		
Product form	: Substance	
Substance name	: L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%)	
EC-No.	: 200-774-1 (Unlabeled)	
CAS-No.	: 72-19-5 (Unlabeled)	
Product code	: CDLM-9307	
Formula	: *CH3CD(OH)CD(NH2)COOH	
Synonyms	: (2S,3R)-2-Amino-3-hydroxybutyric acid	
1.2. Relevant identified uses of the s	substance 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 sat	ety data sheet	
Cambridge Isotope Laboratories, Inc. 50 Frontage Road		
Andover, MA 01810		
USA		
USA: 1-800-322-1174 Int: 1-978-749-800 cilsales@isotope.com 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 identificatio	n	
2.1. Classification of the substance	or mixture	
Classification according to Regulation (E	C) No. 1272/2008 [CLP]	
Not classified		
Classification according to Directive 67/5	48/EEC [DSD] or 1999/45/EC [DPD]	
Not classified		
GHS-US classification		
Not classified		
Not classified Adverse physicochemical, human health and environmental effects		
No additional information available		
2.2. Label elements		
Labeling according to Regulation (EC) No. 1272/2008 [CLP] No labeling applicable		
GHS-US labeling		
No labeling applicable		
2.3. Other hazards		
No additional information available		
SECTION 3: Composition/Information	ation on ingrédients	
3.1. Substances		

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) CDLM-9307

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

Regulation L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) (CAS-No.) 72-19-5 (Unlabeled) (EC-No.) 200-774-1 (Unlabeled) 100 Not classified		Product identifier	%	Classification according to Directive 67/548/EEC
Intercent of the second seco	3-D2, 96-98%)		100	
(EC-No) 200-774-1 (Unlabelied) uil text of R- and H- phrases: see section 16 Name Product identifier % GHS-US clip Uit text of H-phrases: see section 16		Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Name Product identifier % GHS-US of classified LTHEEDNINE (L13C, 97%; 2,3-D2, 96-98%) (CAS-Ma), 72-19-5 (Unlabeled) 100 Not classified Mixtures ot applicable Itext of H-phrases: see section 16 Itext of H-phrases: Itex of H-phrases: Itext of H-phrasese: Itext of H-phrases: Itext of H-phrases: Itext of H-phrases: I	3-D2, 96-98%)		100	Not classified
LTHECONINE (41-3C, 97%; 2):3-D2, 96-98%) (CAS-No.) 72-19-5 (Unlabeled) 100 Not classified Wint construent Mixtures Image: Construent of Case of Ca	: see section 16			
Main constituentig Image: Constituentig uil text of H-phrases: see section 16 . 2. Mixtures Description of first aid measures isrs-aid measures general : Move out of dangerous area. Consult a physician and show this safety data isrs-aid measures general : If breathed in, move person to fresh air. If not breathing, give artificial respir physician. isrs-aid measures after skin contact : Wash with scap and plenty of water. Consult a physician. isrs-aid measures after ingestion : Nuser give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed		Product identifier	%	GHS-US classification
2. Mixtures ot applicable ECTION 45: First aid measures rist-aid measures general : Move out of dangerous area. Consult a physician and show this safety data is traid measures after inhalation irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after reye contact : Flush eyes with water as a precaution. irst-aid measures after inpestion : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available 3. Advice for firefightres <td>3-D2, 96-98%)</td> <td>(CAS-No.) 72-19-5 (Unlabeled)</td> <td>100</td> <td>Not classified</td>	3-D2, 96-98%)	(CAS-No.) 72-19-5 (Unlabeled)	100	Not classified
ot applicable ECTION 4: First aid measures I. Description of first aid measures rst-aid measures general : Move out of dangerous area. Consult a physician and show this safety data rst-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respir physician. rst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. rst-aid measures after eye contact : Flush eyes with water as a precaution. rst-aid measures after skin contact : Flush eyes with water as a precaution. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after inhalatio : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. Advice for firefighting measures 1. Extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mix	ection 16			·
ECTION 4: First aid measures In Description of first aid measures Inst-aid measures general In Move out of dangerous area. Consult a physician and show this safety data Inst-aid measures after inhalation If breathed in, move person to fresh air. If not breathing, give artificial respire physician. Irst-aid measures after skin contact I Wash with scap and plenty of water. Consult a physician. Irst-aid measures after eye contact I Fush eyes with water as a precaution. I Fush eye ornatct I May be harmful if absorbed through skin. May cause skin irritation. I May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed I a dditional information available ECTION 5: Firefighting measures 1. Extinguishing media I Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture I a dditional information available 3. Advice for firefighters 1. Wear self contained breathing apparatus for				
1. Description of first aid measures irst-aid measures general : Move out of dangerous area. Consult a physician and show this safety data irst-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respire physician. irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after skin contact : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after skin contact : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after singestion : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed to additional information available ECTION 5: Firefighting measures . Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 3. Advice for firefighters : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 3. Advice for firefighters : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.				
inst-aid measures general : Move out of dangerous area. Consult a physician and show this safety data irst-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respir physician. irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after skin contact : Flush eyes with water as a precaution. irst-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after skin contact : May be harmful if waulowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 3. Advice for firefighters : Use a self contained breathing apparatus for fire fighting if necessary.	neasures			
irst-aid measures after inhalation : If breathed in, move person to fresh air. If not breathing, give artificial respiration, physician. irst-aid measures after skin contact : Wash with scap and plenty of water. Consult a physician. irst-aid measures after eye contact : Flush eyes with water as a precaution. irst-aid measures after inhalation : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available 3. Advice for firefighters : Wear self contained breathing apparatus for fire fighting if necessary. o tadditional information available : Do not enter fire area without proper protective equipment, including respiratory equipment, including respiratory equipment, including respiratory equipment, including respiratory equipment, inclu	t aid measures			
<pre>irst-aid measures after skin contact : Wash with soap and plenty of water. Consult a physician. irst-aid measures after eye contact : Flush eyes with water as a precaution. irst-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after skin contact : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after skin contact : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available EECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media 3. Advice for firefighters 1. Evand a statistic or mixture o additional information available EECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures 2. Environmental precautions revent entry to severs and public waters. 3. Methods and material for containment and cleaning up</pre>	: Move	: Move out of dangerous area. Consult a phy	sician and show	v this safety data sheet.
rst-aid measures after eye contact : Flush eyes with water as a precaution. rst-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after skin contact : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if solowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting measures 1. Extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available 3. Advice for firefighters refighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. : Do not enter fire area without proper protective equipment, including respira ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional informatia precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up			ot breathing, giv	ve artificial respiration. Consult a
rst-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with physician. 2. Most important symptoms and effects, both acute and delayed ymptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after skin contact : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting measures 1. Extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o o additional information available : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o o additional information available : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 3. Advice for firefighters : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o o additional information avail	contact : Wash	: Wash with soap and plenty of water. Consu	lt a physician.	
2. Most important symptoms and effects, both acute and delayed ymptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after inhalation : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion : May be harmful if absorbed through skin. May cause skin irritation. additional information available : : 1. Extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture : o add				
ymptoms/effects after inhalation May be harmful if inhaled. May cause respiratory tract irritation. ymptoms/effects after skin contact May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after eye contact May be harmful if absorbed through skin. May cause skin irritation. ymptoms/effects after ingestion May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available Wear self contained breathing apparatus for fire fighting if necessary. cotection during firefighters Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting Do not enter fire area without proper protective equipment, including respirat 1. For non-emergency personnel mergency procedures Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available Environmental precautions 2. E			cious person. R	Rinse mouth with water. Consult a
mptoms/effects after skin contact May be harmful if absorbed through skin. May cause skin irritation. mptoms/effects after eye contact May cause eye irritation. mptoms/effects after ingestion May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed b additional information available ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture b additional information available Wear self contained breathing apparatus for fire fighting if necessary. cotection during firefighting : Wear self contained breathing apparatus for fire fighting if necessary. cotection during firefighting : Do not enter fire area without proper protective equipment, including respirat ECTION 6: Accidental release measures . 1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders b additional information available : 2. Environmental precautions cot dust formation. Avoid breathing vapors, m	mptoms and effects, both	s, both acute and delayed		
mptoms/effects after eye contact : May cause eye irritation. mptoms/effects after ingestion : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed b additional information available ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media uitable extinguishing media c Special hazards arising from the substance or mixture b additional information available 3. Advice for firefighters refighting instructions c Do not enter fire area without proper protective equipment, including respirate ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures c additional information available 2. Special hazards arising from the substance or mixture b additional information available 3. Advice for firefighters refighting instructions c Do not enter fire area without proper protective equipment, including respirate ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency responders b additional information available 2. Environmental precautions event entry to sewers and public waters. 3. Methods and material for containment and cleaning up	•		•	
ymptoms/effects after ingestion : May be harmful if swallowed. 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available . 3. Advice for firefighters refighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting : Do not enter fire area without proper protective equipment, including respirate ECTION 6: Accidental release measures . 1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available . 2. Environmental precautions revent entry to sewers and public waters. . 3. Methods and material for containment and cleaning up			ay cause skin ir	rritation.
 3. Indication of any immediate medical attention and special treatment needed o additional information available ECTION 5: Firefighting measures 1. Extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available 3. Advice for firefighters refighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting : Do not enter fire area without proper protective equipment, including respirat ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up 				
o additional information available ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture o additional information available . 3. Advice for firefighters irefighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting : Do not enter fire area without proper protective equipment, including respirat ECTION 6: Accidental release measures . 1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available . 2. Environmental precautions revent entry to sewers and public waters. . 3. Methods and material for containment and cleaning up	tion : May I	: May be harmful if swallowed.		
ECTION 5: Firefighting measures 1. Extinguishing media uitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture to additional information available . 3. Advice for firefighters tirefighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting : Do not enter fire area without proper protective equipment, including respirate ECTION 6: Accidental release measures . 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders to additional information available . 2. Environmental precautions revent entry to sewers and public waters. . 3. Methods and material for containment and cleaning up		attention and special treatment needed		
1. Extinguishing media Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. 2. Special hazards arising from the substance or mixture to additional information available				
uitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide. .2. Special hazards arising from the substance or mixture lo additional information available				
 2. Special hazards arising from the substance or mixture additional information available 3. Advice for firefighters irefighting instructions Wear self contained breathing apparatus for fire fighting if necessary. Do not enter fire area without proper protective equipment, including respira ECTION 6: Accidental release measures Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up 		· Use water spray, alcohol-resistant foam, dr	chemical or c	arbon dioxide
o additional information available 3. Advice for firefighters refighting instructions : Wear self contained breathing apparatus for fire fighting if necessary. rotection during firefighting : Do not enter fire area without proper protective equipment, including respirate ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up				
 Wear self contained breathing apparatus for fire fighting if necessary. Do not enter fire area without proper protective equipment, including respirated to the proceedures of the procee	J	stance or mixture		
rotection during firefighting : Do not enter fire area without proper protective equipment, including respiration ECTION 6: Accidental release measures 1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up	ters			
ECTION 6: Accidental release measures .1. Personal precautions, protective equipment and emergency procedures .1.1. For non-emergency personnel mergency procedures Avoid dust formation. Avoid breathing vapors, mist or gas. .1.2. For emergency responders lo additional information available .2. Environmental precautions revent entry to sewers and public waters. .3. Methods and material for containment and cleaning up	: Wear	: Wear self contained breathing apparatus fo	r fire fighting if r	necessary.
1. Personal precautions, protective equipment and emergency procedures 1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available . 2. Environmental precautions revent entry to sewers and public waters. . 3. Methods and material for containment and cleaning up	: Do no	: Do not enter fire area without proper protect	tive equipment,	including respiratory protection.
1.1. For non-emergency personnel mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders : additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up	al release measures	ures		
 mergency procedures : Avoid dust formation. Avoid breathing vapors, mist or gas. 1.2. For emergency responders o additional information available 2. Environmental precautions revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up 	ons, protective equipment	ipment and emergency procedures		
.1.2. For emergency responders lo additional information available .2. Environmental precautions revent entry to sewers and public waters. .3. Methods and material for containment and cleaning up	cy personnel			
 additional information available Environmental precautions revent entry to sewers and public waters. Methods and material for containment and cleaning up 	: Avoic	: Avoid dust formation. Avoid breathing vapor	s, mist or gas.	
 additional information available Environmental precautions revent entry to sewers and public waters. Methods and material for containment and cleaning up 	sponders			
revent entry to sewers and public waters. 3. Methods and material for containment and cleaning up	· · · · · · · · · · · · · · · · · · ·			
3. Methods and material for containment and cleaning up	ecautions			
	oublic waters.			
or containment : Take up mechanically (sweeping, shoveling) and collect in suitable contained	erial for containment and c	nt and cleaning up		
	: Take	: Take up mechanically (sweeping, shoveling) and collect in	suitable container for disposal.
4. Reference to other sections	r sections			

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) CDLM-9307

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 7: Handling and storage		
7.1. Precautions for safe handling		
Additional hazards when processed	: Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.	
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, includ	ing any incompatibilities	
Technical measures	: Keep container tightly closed in a cool, dry and well-ventilated place.	
Storage conditions	: Store at room temperature away from light and moisture.	
7.3. Specific end use(s)		
No additional information available		
SECTION 8: Exposure controls/pers	sonal protection	
8.1. Control parameters		
No additional information available		
8.2. Exposure controls		
Appropriate engineering controls	 Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. 	
Personal protective equipment	: Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.	
Materials for protective clothing	: Wear suitable protective clothing and gloves.	
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.	
Environmental exposure controls	: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.	
SECTION 9: Physical and chemical properties		
9.1. Information on basic physical and	chemical properties	
Physical state	: Solid	
Appearance	: Crystalline, Powder	
Molecular mass	: 122.12 g/mol (Labeled)	

Molecular mass	:	122.12 g/mol (Labeled)
Color	:	White
Odor	:	No data available
Odor threshold	:	No data available
рН	:	5.0 - 6 at 59.6 g/l at 25 °C (77 °F)
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	256 °C (493 °F)
Freezing point	:	No data available
Boiling point	:	260 °C
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Specific gravity / density	:	1.464 g/cm ³
Solubility	:	Water: 59.6 g/l at 20 $^\circ\text{C}$ (68 $^\circ\text{F})$ - completely soluble
Log Pow	:	-1.43

Log Kow 27/07/2022 : No data available

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) CDLM-9307

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

Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available
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	
No additional information available	
10.5. Incompatible materials	
Strong oxidizing agents.	
10.6. Hazardous decomposition products	
Carbon oxides (CO, CO2). Nitrogen oxides.	

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified		
L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) (72-19-5 (Unlabeled))			
LD50 Intraperitoneal - Rat - 3,098 mg/kg Remarks	Behavioral: Muscle contraction or spasticity. Lungs, Torax, or Respiration: Dyspnea. Nutritional and Gross Metablollic: Changes in: Body temperature decrease.		
Skin corrosion/irritation	: Not classified		
	pH: 5.0 - 6 at 59.6 g/l at 25 °C (77 °F)		
Serious eye damage/irritation	: Not classified		
	pH: 5.0 - 6 at 59.6 g/l at 25 °C (77 °F)		
Respiratory or skin sensitization	: Not classified		
Germ cell mutagenicity	: Not classified		
Carcinogenicity	: Not classified		
Reproductive toxicity	: Not classified		
Specific target organ toxicity – single exposure	: Not classified		
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.		
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.		
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.		
Symptoms/effects after eye contact	: May cause eye irritation.		
Symptoms/effects after ingestion	: May be harmful if swallowed.		

SECTIO	ON 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.
12.2.	Persistence and degradability	
No additi	onal information available	

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) CDLM-9307

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

12.3. Bioaccumulative potential		
L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) (7		
Log Pow	-1.43	
12.4. Mobility in soil		
No additional information available		
12.5. Results of PBT and vPvB assessment	t	
No additional information available		
12.6. Other adverse effects		
Other adverse effects	: Disposal must be done according to official regulations. Avoid release to the environment.	
SECTION 13: Disposal considerations	5	
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 / AD	Ν	
14.1. UN number		
Not applicable		
14.2. UN proper shipping name		
Not applicable		
14.3. Additional information		
Other information	: No supplementary information available.	
Special transport precautions	: Not dangerous goods.	
Overland transport		
No additional information available		
Transport by sea		
No additional information available		
Air transport		
No additional information available		
14.4. Environmental hazards	No superior stars information and the	
	: No supplementary information available.	
14.5. Special precautions for user		
Special transport precautions	: 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		
L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) (72-19-5 (Unlabeled))	
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 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313	
15.2. International regulations		

CANADA

Listed on the Canadian DSL (Domestic Substances List)	

15.2.1. National regulations

No additional information available

L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%) CDLM-9307

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

15.3. US State regulations		
L-THREONINE (4-13C, 97%; 2,3-D2, 96-98%)(72-19-5 (Unlabeled))		
U.S California - Proposition 65 - Carcinogens List	No	
U.S California - Proposition 65 - Developmental Toxicity	No	
U.S California - Proposition 65 - Reproductive Toxicity - Female	No	
U.S California - Proposition 65 - Reproductive Toxicity - Male	No	
State or local regulations	RTK - U.S Pennsylvania - RTK (Right to Know) List RTK - U.S New Jersey - Right to Know Hazardous Substance List	

SECTION 16: Other information

NFPA health hazard	: 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard	: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.
NFPA reactivity	: 0 - Material that in themselves are normally stable, even under fire conditions.
Hazard Rating	
Health	: 0 Minimal Hazard - No significant risk to health
Flammability	: 0 Minimal 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