

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 28/08/2014

Revision date:

Version: 1.0

CLM-4556-S

SECTION 1: Identification of the	substance/mixture and of the company/undertaking
1.1. Product identifier	
Product form	: Mixtures
Product name.	: NNAL 100 UG/ML IN ACETONITRILE (1,2',3',4',5',6'-13C6, 99%)
Product code	: CLM-4556-S
1.2. Relevant identified uses of the	substance or mixture and uses advised against
1.2.1. Relevant identified uses	
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 sa	fety data sheet
Cambridge Isotope Laboratories, Inc. 50 Frontage Road Andover, MA 01810 USA USA: 1-800-322-1174 Int: 1-978-749-800 <u>cilsales@isotope.com</u> www.isotope.com	0
Emergency telephone number	
Emergency numbers:	
Chemtrec: 1-800-424-9300 (24 hours) International: 1-202-483-7616 (24 hours)	
SECTION 2: Hazards identification	bn
2.1. Classification of the substance	or mixture
Classification according to Regulation (E	C) No. 1272/2008 [CLP]
Flam. Liq. 2	H225
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Dermal)	H312
Acute Tox. 4 (Inhalation:dust,mist)	H332
Eye Irrit. 2	H319
Full text of H-phrases: see section 16	
Classification according to Directive 67/5 F; R11 Full text of R-phrases: see section 16	i48/EEC or 1999/45/EC
Classification (GHS-US)	
Flam. Liq. 2 Acute Tox. 4 (Oral) Acute Tox. 4 (Dermal) Acute Tox. 4 (Inhalation:dust,mist) Eye Irrit. 2A	H225 H302 H312 H332 H319
Adverse physicochemical, human health	and environmental effects
Lungs, Blood, Kidney, Liver, Central nervou	s system

Safety Data Sheet according to Regulation (EC) No. 453/2010 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	lo. 1272/2008 [CLP]
Hazard pictograms (CLP)	
	GHS02 GHS07
Signal word (CLP)	: Danger
Hazardous ingredients	: ACETONITRILE UNLABELED
Hazard statements (CLP)	: H225 - Highly flammable liquid and vapor
	H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled H319 - Causes serious eye irritation
Precautionary statements (CLP)	: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No
	smoking P233 - Keep container tightly closed
	P240 - Ground/bond container and receiving equipment
	P241 - Use explosion-proof electrical, lighting, ventilating equipment
	P261 - Avoid breathing dust, fume, gas, mist, spray, vapors P264 - Wash Both hands thoroughly after handling
	P270 - Do no eat, drink or smoke when using this product
	P271 - Use only outdoors or in a well-ventilated area
GHS-US labeling	
Hazard pictograms (GHS-US)	
	GHS02 GHS07
Signal word (GHS-US)	GHS02 GHS07 : Danger
	5
Hazard statements (GHS-US)	 H225 - Highly flammable liquid and vapor H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled H319 - Causes serious eye irritation
Precautionary statements (GHS-US)	: P210 - Keep away from heat, hot surfaces, open flames, sparks No smoking
	P233 - Keep container tightly closed P240 - Ground/bond container and receiving equipment
	P241 - Use explosion-proof electrical, lighting, ventilating equipment
	P242 - Use only non-sparking tools
	P243 - Take precautionary measures against static discharge
	P261 - Avoid breathing dust, fume, gas, mist, spray, vapors P264 - Wash Both hands thoroughly after handling
	P270 - Do no eat, drink or smoke when using this product
	P271 - Use only outdoors or in a well-ventilated area
	P280 - Wear protective clothing, protective gloves P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwe
	P302+P352 - IF ON SKIN: Wash with plenty of soap and water
	P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated
	clothing. Rinse skin with water/shower
	P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortal for breathing
	P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove conta
	lenses, if present and easy to do. Continue rinsing
	P312 - Call a POISON CENTER/doctor/physician if you feel unwell P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
	P330 - If swallowed, rinse mouth
	P337+P313 - If eye irritation persists: Get medical advice/attention
	P362+P364 - Take off contaminated clothing and wash it before reuse
	P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Wa spray for extinction
	P403+P235 - Store in a well-ventilated place. Keep cool
	P501 - Dispose of contents/container to Comply with applicable regulations.

Other hazards 2.3.

No additional information available

Safety Data Sheet according to Regulation (EC) No. 453/2010 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

Not applicable

Nome	Dreduct identifier	0/	Oleasification assessible to
Name	Product identifier	%	Classification according to Directive 67/548/EEC
ACETONITRILE UNLABELED	(CAS No)75-05-8 (EC no)200-835-2 (EC index no)608-001-00-3	99.9873	F; R11
NNAL (1,2',3',4',5',6'-13C6, 99%)	(CAS No)76014-81-8 (Unlabeled)	0.0127	Not classified
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ACETONITRILE UNLABELED	(CAS No)75-05-8 (EC no)200-835-2 (EC index no)608-001-00-3	99.9873	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319
NNAL (1,2',3',4',5',6'-13C6, 99%)	(CAS No)76014-81-8 (Unlabeled)	0.0127	Not classified
Nama	Droduct identifier	%	Classification (CHC US)
Name	Product identifier	70	Classification (GHS-US)
ACETONITRILE UNLABELED	(CAS No)75-05-8	99.9873	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2A, H319

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

SECTION 4: First aid measures	
4.1. Description of first aid measures	
First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a POISON CENTER or doctor/physician. Specific measures (see Hazard pictograms (CLP) on this label). Wash with plenty of soap and water. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
First-aid measures after ingestion	: Rinse mouth. Call a POISON CENTER/doctor/physician if you feel unwell.
4.2. Most important symptoms and effect	ts, both acute and delayed
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

Indication of any immediate medical attention and special treatment needed 4.3.

No additional information available

SECT	ION 5: Firefighting measures	
5.1.	Extinguishing media	
suitable	extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
5.2.	Special hazards arising from the su	ubstance or mixture
Fire haz	zard	: Highly flammable liquid and vapor.
Explosi	on hazard	: May form flammable/explosive vapor-air mixture.
5.3.	Advice for firefighters	
Protecti	on during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 6: Accide	ntal release measu	ires	
6.1. Personal preca	autions, protective equi	pment and emergency procedures	
General measures	-	Remove ignition sources. Use special smoking.	care to avoid static electric charges. No naked lights. No
6.1.1. For non-emerg	ency personnel available		
6.1.2. For emergency No additional information			
6.2. Environmental	precautions		
Prevent further leakage o	r spillage if safe to do so.	Do not let product enter drains. Discha	arge into the environment must be avoided.
6.3. Methods and r	naterial for containment	t and cleaning up	
No additional information	available		
6.4. Reference to o			
No additional information	available		
SECTION 7: Handli	ng and storage		
	r safe handling		
Additional hazards when		Handle empty containers with care be	•
Precautions for safe hand	0	ventilated area. Avoid breathing dust,	
Hygiene measures		Do no eat, drink or smoke when using	this product. Wash Both hands thoroughly after handling.
	safe storage, including		
Technical measures	:	container and receiving equipment. Us	I static electricity should be followed. Ground/bond se explosion-proof electrical equipment.
Storage conditions	:	Store refrigerated (-5 C to 5 C). Protect	ct from light.
Incompatible materials		Heat sources.	
7.3. Specific end u No additional information			
SECTION 8: Expos	ure controls/perso	nal protection	
8.1. Control param			
ACETONITRILE UNLA	RELED (75-05-8)		
Italy - Portugal- USA AC		m)	20.0000000000 ppm Lower Respiratory Tract irritation. Not classifiable as a human carcinogen.
USA OSHA	OSHA PEL (TW/	A) (ppm)	40.000000000 ppm
USA OSHA	OSHA PEL (STE	EL) (ppm)	60.000000000 ppm
8.2. Exposure conf	rols		
Personal protective equip		Gloves. Protective clothing. Protective	goggles. Self-contained breathing apparatus.
Hand protection	:	Wear suitable protective clothing and	gloves.
Eye protection			-
Skin and body protection			
Respiratory protection	:	Wear approved mask.	
SECTION 9: Physic	al and chemical pr	operties	

9.1. I	nformation on basic physical and ch	emical properties		
The properties	The properties listed below are for the solvent, the main component of this mixture.			
Physical st	ate	: Liquid		
Appearanc	e	: Liquid, clear.		
Molecular I	mass	: 41.05		
Color		: Colourless.		

EN (English US)

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

according to Regulation (EC) No. 453/2010 and according t	o Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations		
Odor	ether-like.		
Odor threshold	No data available		
рН	No data available		
Relative evaporation rate (butyl acetate=1)	No data available		
Melting point	-48 °C (-54°F)		
Freezing point	No data available		
Boiling point	81 - 82 °C (178 - 180 °F)		
	2.0 °C (35.6 °F) - closed cup		
Self ignition temperature	523 °C (973 °F)		
Decomposition temperature	No data available		
	Highly flammable liquid and vapor		
	73.18 hPa (54.89 mmHg) at 15°C (59 °F), 119.81 hPa (89.86 mmHg) at 25°C(77 °F)		
	1.42 - (Air = 1.0)		
	No data available		
Solubility	Water: 100 %		
-	-0.34		
Log Kow	No data available		
Viscosity, kinematic	No data available		
	No data available		
	No data available		
Lee el deste	No data available		
Oxidizing properties	4.4 - 16 vol %		
Explosive limits	4.4 - 16 V01 %		
9.2. Other information			
No additional information available			
SECTION 10: Stability and reactivity			
10.1. Reactivity			
No additional information available			
10.2. Chemical stability			
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			
Open flame. Direct sunlight.			
10.5. Incompatible materials			
No additional information available			
10.6. Hazardous decomposition products			
May release flammable gases.			
SECTION 11: Toxicological information	n		
11.1. Information on toxicological effects			
	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.		
NNAL 100 UG/ML IN ACETONITRILE (1,2',3',4			
ATE (oral)	500.000 mg/kg body weight		
ATE (dermal)	1100.000 mg/kg body weight		
ATE (dust, mist)	1.500 mg/l/4h		
ACETONITRILE UNLABELED (75-05-8)			
LD50 oral rat	2460 mg/kg		
LD50 dermal rabbit	2000 mg/kg		
LC50 inhalation rat (mg/l)	≥ 26.8 mg/l		
LC50 inhalation rat (ppm)	7551 ppm - 8h 500.000 mg/kg body weight		
ATE (oral) ATE (dermal)	2000.000 mg/kg body weight		
ATE (gases)	4500.000 ppmV/4h		
	11.000 mg/l/4h		
ATE (vapors)			

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

ACETONITRILE UNLABELED (75-05-8)	
ATE (dust, mist)	1.500 mg/l/4h
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
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	: Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.
Symptoms/injuries after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. Harmful if inhaled.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

ACETONITRILE UNLABELED (75-05-8)	
LC50 fish 1	1640.00 mg/l Pimephales promelas (fathead minnow) - 96h
EC50 Daphnia 1	3600 mg/l Daphnia magna (Water flea) - 48h
NOEC (chronic)	640 mg/l Daphnia magna (Water flea) - 14d

12.2. Persistence and degradability

ACETONITRILE UNLABELED (75-05-8)			
Persistence and degradability	Biodegradability Result: - Readily biodegradable.		
NNAL (1,2',3',4',5',6'-13C6, 99%) (76014-81-8 (Unlabeled))			
Persistence and degradability	Not available.		
12.3. Bioaccumulative potential			
NNAL 100 UG/ML IN ACETONITRILE (1,2',3',	4',5',6'-13C6, 99%)		
Log Pow	-0.34		
ACETONITRILE UNLABELED (75-05-8)			
Log Pow	-0.34		
Bioaccumulative potential	No bioaccumulation is to be expected (log Pow <= 4).		
NNAL (1,2',3',4',5',6'-13C6, 99%) (76014-81-8 (Unlabeled))		
Bioaccumulative potential	Not available.		
12.4. Mobility in soil			
ACETONITRILE UNLABELED (75-05-8)			
Ecology - soil	Not expected to absorb on soil.		
NNAL (1,2',3',4',5',6'-13C6, 99%) (76014-81-8 (Unlabeled))		
Ecology - soil	Not available.		
12.5 Results of PBT and vPvB assessmen	t .		

12.5. Results of PBT and vPvB assessment

No additional information available

Other adverse effects 12.6.

No additional information available

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

gg	
SECTION 13: Disposal consideratio	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.
Waste disposal recommendations	: Dispose of contents/container to Comply with applicable regulations.
Additional information	: Handle empty containers with care because residual vapors are flammable.
SECTION 14: Transport information	
In accordance with ADR / RID / ADNR / IMDG /	ICAO / IATA
14.1. UN number	
UN-No.(DOT)	: 1648
DOT NA no.	UN1648
14.2. UN proper shipping name	
DOT Proper Shipping Name	: Acetonitrile
Department of Transportation (DOT) Hazard Classes	: 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT)	: 3 - Flammable liquid
Packing group (DOT)	: II - Medium Danger
DOT Special Provisions (49 CFR 172.102)	 IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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. T7 - 4 178.274(d)(2) Normal
DOT Packaging Exceptions (49 CFR 173.xxx)	: 150
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
14.3. Additional information	

Other information

: No supplementary information available.

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Overland transport	
Packing group (ADR)	
Class (ADR)	: 3 - Flammable liquid
Hazard identification number (Kemler No.)	: 33
Classification code (ADR)	: F1
Danger labels (ADR)	: 3 - Flammable liquids
	3
Orange plates	33 1648
Tunnel restriction code	: D/E
Limited quantities (ADR)	1L
EAC	: •2YE
Excepted quantities (ADR)	: E2
Transport by sea	
DOT Vessel Stowage Location	: B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"
MFAG-No	: 127
Air transport	
Air transport	. 51
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	. SE
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 60 L
Civil Aeronautics Law	: Flammable liquids
Civil Actorizations Law	
14.4. Environmental hazards	
Other information	: No supplementary information available.
14.5. Special precautions for user	
14.6. Transport in bulk according to Anne	x II of MARPOL 73/78 and the IBC Code
Not applicable	
SECTION 15: Regulatory information	
15.1. US Federal regulations	
NNAL 100 UG/ML IN ACETONITRILE (1,2',3',	4',5',6'-13C6, 99%)
Listed on CADA Castion 242 (Creating taxis also	and and the Constant

	,-,- ,- ,,-,	
Listed on SARA Section 313 (Specific toxic chemical listings)		
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard	
ACETONITRILE UNLABELED (75-05-8)		
Listed on SARA Section 313 (Specific toxic chemical listings)		
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard	

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

15.2. International regulations CANADA

NNAL 100 UG/ML IN ACETONITRILE (1,2',3',4',5',6'-13C6, 99%)

Listed on the Canadian DSL (Domestic Substances List) inventory.

ACETONITRILE UNLABELED (75-05-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

15.2.1. National regulations

No additional information available

15.3. US State regulations			
NNAL 100 UG/ML IN ACETONITRILE (1,2',3',4',5',6'-13C6, 99%)()			
State or local regulations	U.S Massachusetts - Right To Know List U.S Pennsylvania - RTK (Right to Know) List U.S New Jersey - Right to Know Hazardous Substance List This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.		

ACETONITRILE UNLABELED (75-05-8)

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - New Jersey - Right to Know Hazardous Substance List

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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::

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 2	Flammable liquids Category 2
H225	Highly flammable liquid and vapor
H302	Harmful if swallowed
H312	Harmful in contact with skin
H319	Causes serious eye irritation
H332	Harmful if inhaled
R11	Highly flammable
F	Highly flammable

NFPA health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.	
NFPA fire hazard	: 3 - Liquids and solids that can be ignited under almost all ambient conditions.	
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.	
HMIS III Rating		
Health	: 2 Moderate Hazard - Temporary or minor injury may occur	
Flammability	: 3 Serious Hazard	
28/08/2014	EN (English US)	9/

Safety Data Sheet according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Physical

: 0 Minimal Hazard

CIL Mixture 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