



2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%

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: 27/05/2016

Revision date:

Version: 1.0

DNLM-97

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixtures
Product name.	: 2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%
Product code	: DNLM-97
Other means of identification	: Also applicable to: DNLM-97A DNLM-97B DNLM-97C DNLM-97D DNLM-97F (3" FILL HEIGHT) DNLM-97N

1.2. Relevant identified uses of the 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 safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
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 identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Classification according to Directive 67/548/EEC or 1999/45/EC

Muta.Cat.3; R68

Full text of R-phrases: see section 16

Classification (GHS-US)

Flam. Liq. 4 H227

Adverse physicochemical, human health and environmental effects

Eyes, Skin.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazardous ingredients : BENZAMIDE (15N, 98%+)

GHS-US labeling

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Signal word (GHS-US)	: Warning
Hazard statements (GHS-US)	: H227 - Combustible liquid
Precautionary statements (GHS-US)	: P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P280 - Wear protective gloves/protective clothing/eye protection/face protection P370+P378 - In case of fire: Use ... for extinction P403+P235 - Store in a well-ventilated place. Keep cool P501 - Dispose of contents/container to ...

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%)	(CAS No) 2206-27-1 (EC no) 200-664-3	98.18	Not classified
BENZAMIDE (15N, 98%+)	(CAS No) 31656-62-9 (EC no) 200-227-7	1.65	Muta.Cat.3; R68 Xn; R22
CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED	(CAS No) 21679-31-2 (EC no) 244-526-0	0.17	Xi; R36/37/38

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%)	(CAS No) 2206-27-1 (EC no) 200-664-3	98.18	Not classified
BENZAMIDE (15N, 98%+)	(CAS No) 31656-62-9 (EC no) 200-227-7	1.65	Acute Tox. 4 (Oral), H302 Muta. 2, H341
CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED	(CAS No) 21679-31-2 (EC no) 244-526-0	0.17	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Name	Product identifier	%	Classification (GHS-US)
BENZAMIDE (15N, 98%+)	(CAS No) 31656-62-9	1.65	Acute Tox. 4 (Oral), H302 Muta. 2, H341

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	: 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 plenty of soap and water.
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	: 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 effects, both acute and delayed

Symptoms/injuries after inhalation	: May be harmful if inhaled. Causes respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
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5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid breathing vapors, mist, or gas.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Hygiene measures : Wash Both hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

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/personal protection

8.1. Control parameters

No additional information available

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

Respiratory protection : Wear self contained breathing apparatus for fire fighting if necessary. When appropriate, use NIOSH/CEN approved respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state	: Liquid
Appearance	: Liquid, clear.
Molecular mass	: 84.17 g/mol (Labeled)
Color	: Colourless.
Odor	: sulphurous.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: 18.4 °C (65.1 °F)
Freezing point	: No data available
Boiling point	: 189 °C (372 °F) at 1,013 hPa (760 mmHg)

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Flash point	: 87 °C (189 °F) - closed cup
Self ignition temperature	: 301 °C (574 °F)
Decomposition temperature	: > 190 °C (> 374 °F)
Flammability (solid, gas)	: No data available
Vapor pressure	: 0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
Vapor pressure at 50 °C	: 4 hPa (3 mmHg) (122 °F)
Relative vapor density at 20 °C	: 2.7 (Air = 1.0)
Relative density	: No data available
Density	: 1.19 g/ml (Labeled)
Solubility	: Water: Completely miscible
Log Pow	: -1.349
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
Explosive limits	: 3.5 - 42 % (V)

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. Open flame. Sparks.

10.5. Incompatible materials

Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents. Strong reducing agents.

10.6. Hazardous decomposition products

Products formed under fire conditions. - Carbon oxides, Sulphur oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%	
LD50 oral rat	14500 mg/kg
LD50 dermal rabbit	> 5000 mg/kg
LC50 inhalation rat (ppm)	40250 ppm 4h
ATE (oral)	14500.000 mg/kg body weight

BENZAMIDE (15N, 98%+) (31656-62-9)	
ATE (oral)	500.000 mg/kg body weight

CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED (21679-31-2)	
LD50 oral rat	3360 mg/kg
LD50 dermal rabbit	6350 mg/kg
ATE (oral)	3360.000 mg/kg body weight
ATE (dermal)	6350.000 mg/kg body weight

DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%) (2206-27-1)	
LD50 oral rat	14500 mg/kg
LD50 dermal rabbit	> 5000 mg/kg
LC50 inhalation rat (ppm)	40250 ppm 4h
ATE (oral)	14500.000 mg/kg body weight

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Skin corrosion/irritation	: Not classified Skin - rabbit - Mild skin irritation - 24 h
Serious eye damage/irritation	: Not classified Eyes - rabbit - Mild eye irritation
Respiratory or skin sensitization	: Not available No data available
Germ cell mutagenicity	: Not available
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
Symptoms/injuries after inhalation	: May be harmful if inhaled. Causes respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%	
LC50 fish 1	34000 mg/l Pimephales promelas (fathead minnow) - 96h
EC50 Daphnia 1	24600 mg/l Daphnia magna (Water flea) - 48 h
LC50 fish 2	35000 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
LC50 other aquatic organisms 2	17000 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h
ErC50 (algae)	400000 mg/l Lepomis macrochirus (Bluegill) -96h

BENZAMIDE (15N, 98%+) (31656-62-9)	
LC50 fish 1	661 mg/l Pimephales promelas (fathead minnow) - 96 h

DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%) (2206-27-1)	
LC50 fish 1	34000 mg/l Pimephales promelas (fathead minnow) - 96h
EC50 Daphnia 1	24600 mg/l Daphnia magna (Water flea) - 48 h
LC50 fish 2	35000 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
LC50 other aquatic organisms 2	17000 mg/l Pseudokirchneriella subcapitata (green algae) - 72 h
ErC50 (algae)	400000 mg/l Lepomis macrochirus (Bluegill) -96h

12.2. Persistence and degradability

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%	
Persistence and degradability	Not available.
BOD (% of ThOD)	31 % ThOD

BENZAMIDE (15N, 98%+) (31656-62-9)	
Persistence and degradability	Not available.

CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED (21679-31-2)	
Persistence and degradability	Not available.

DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%) (2206-27-1)	
Persistence and degradability	Not available.
BOD (% of ThOD)	31 % ThOD

12.3. Bioaccumulative potential

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%	
Log Pow	-1.349

BENZAMIDE (15N, 98%+) (31656-62-9)	
Log Pow	0.64
Bioaccumulative potential	Not available.

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CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED (21679-31-2)	
Bioaccumulative potential	Not available.

DIMETHYL SULFOXIDE-D6 "100%" (D, 99.96%) (2206-27-1)	
Log Pow	-1.349

12.4. Mobility in soil

BENZAMIDE (15N, 98%+) (31656-62-9)	
Ecology - soil	Not available.

CHROMIUM (III) 2,4-PENTANEDIONATE UNLABELED (21679-31-2)	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : Not available.

SECTION 13: Disposal considerations

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 in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : NA1993

DOT NA no. : NA1993

14.2. UN proper shipping name

DOT Proper Shipping Name : Combustible liquid, n.o.s.

Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

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..... 178.275(d)(2)

T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

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

Packing group (ADR) : III

Class (ADR) : 3 - Flammable liquid

Hazard identification number (Kemler No.) : 30

Classification code (ADR) : F1

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Danger labels (ADR) : 3 - Flammable liquids



Orange plates :

Tunnel restriction code : D/E

Limited quantities (ADR) : 5L

EAC : •3YE

Excepted quantities (ADR) : E1

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a 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

14.4. Environmental hazards

Other information : 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

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%

SARA Section 311/312 Hazard Classes	Fire hazard Delayed (chronic) health hazard
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BENZAMIDE (15N, 98%+) (31656-62-9)

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
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15.2. International regulations

CANADA

2% BENZAMIDE (15N, 98%+) + 0.2% CR(ACAC)3 IN DMSO-D6 100%

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

BENZAMIDE (15N, 98%+) (31656-62-9)

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

15.2.1. National regulations

No additional information available

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15.3. US State regulations

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State or local regulations

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.

BENZAMIDE (15N, 98%+) (31656-62-9)

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.

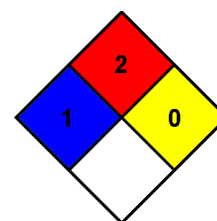
SECTION 16: Other information

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 (Oral)	Acute toxicity (oral) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Muta. 2	Germ cell mutagenicity Category 2
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
R22	Harmful if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R68	Possible risk of irreversible effects
Xi	Irritant
Xn	Harmful

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard : 2 - Must be moderately heated or exposed to relatively high temperature before ignition can occur.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability : 2 Moderate Hazard
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