

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 03/11/2015 Version: 1.0

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

#### 1.1. Product identifier

Product form : Substance  
 Trade name : PIPERIDINE/20% IN DMF  
 Product code : AB11155

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Laboratory use/Manufacturing component/Research

#### 1.3. Details of the supplier of the safety data sheet

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[info@americanbio.com](mailto:info@americanbio.com) - [www.americanbio.com](http://www.americanbio.com)

#### 1.4. Emergency telephone number

Emergency number : 855.835.2572 (U.S.) :: 760.602.8703 (Outside U.S.)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Flam. Liq. 2 H225  
 Acute Tox. 3 (Dermal) H311  
 Acute Tox. 3 (Inhalation:dust,mist) H331  
 Skin Corr. 1A H314

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapor  
 H311+H331 - Toxic in contact with skin or if inhaled  
 H314 - Causes severe skin burns and eye damage

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 production equipment  
 P242 - Use only non-sparking tools  
 P243 - Take precautionary measures against static discharge  
 P260 - Do not breathe fume, gas, mist, spray, vapors  
 P261 - Avoid breathing fume, gas, mist, spray, vapors  
 P264 - Wash clothing thoroughly after handling  
 P271 - Use only outdoors or in a well-ventilated area  
 P280 - Wear eye protection, protective clothing, protective gloves  
 P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
 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 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  
 P310 - Immediately call a POISON CENTER or doctor/physician  
 P311 - Call a POISON CENTER or doctor/physician  
 P312 - Call a POISON CENTER/doctor/physician if you feel unwell

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P321 - Specific treatment (see SECTION 4 on this label)  
P361 - Remove/Take off immediately all contaminated clothing  
P363 - Wash contaminated clothing before reuse  
P370+P378 - In case of fire: Use water spray, foam, sand for extinction  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
P403+P235 - Store in a well-ventilated place. Keep cool  
P405 - Store locked up  
P501 - Dispose of contents/container to approved waste facility

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS-US)

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Trade name : PIPERIDINE/20% IN DMF

Name	Product identifier	%	Classification (GHS-US)
N,N-dimethylformamide	(CAS No) 68-12-2	75 - 85	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332
piperidine	(CAS No) 110-89-4	15 - 25	Flam. Liq. 2, H225 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:dust,mist), H331 Skin Corr. 1A, H314

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Specific treatment (see If you feel unwell, seek medical advice. on this label).

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. Wash with plenty of soap and water. Specific measures (see Consult a doctor/medical service on this label). 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. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Causes severe skin burns and eye damage.

Symptoms/injuries after inhalation : Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation.

Symptoms/injuries after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.

### 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 : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- Explosion hazard : May form flammable/explosive vapor-air mixture.  
Reactivity : Thermal decomposition generates : Corrosive vapors.

### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.  
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

- General measures : Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.  
Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.  
Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No naked lights. No smoking. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Avoid breathing fume/gas/mist/vapours/spray. Do not breathe fume/gas/mist/vapours/spray. Avoid contact during pregnancy/while nursing.  
Hygiene measures : Wash clothing, hands, forearms, face thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof production equipment. Comply with applicable regulations.  
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight., Heat sources. Keep in fireproof place. Keep container tightly closed.  
Incompatible products : Strong bases. strong acids.  
Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

N,N-dimethylformamide (68-12-2)		
USA ACGIH	ACGIH TWA (ppm)	10 ppm
USA ACGIH	ACGIH STEL (ppm)	10 ppm

### 8.2. Exposure controls

- Personal protective equipment : Avoid all unnecessary exposure.  
Hand protection : Wear protective gloves.  
Eye protection : Chemical goggles or face shield.  
Skin and body protection : Wear suitable protective clothing.

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Respiratory protection : Wear approved mask.  
Other information : When using, do not eat, drink or smoke.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Color : Colorless.  
Odor : characteristic.  
Odor threshold : No data available  
pH : No data available  
Relative evaporation rate (butyl acetate=1) : No data available  
Melting point : No data available  
Freezing point : No data available  
Boiling point : No data available  
Flash point : No data available  
Self 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  
Solubility : No data available  
Log Pow : No data available  
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 : No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

#### 10.2. Chemical stability

Not established. Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

#### 10.5. Incompatible materials

strong acids. Strong bases.

#### 10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases. Thermal decomposition generates : Corrosive vapors.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Toxic in contact with skin. Toxic if inhaled.

#### **N,N-dimethylformamide (68-12-2)**

LD50 oral rat	> 2000 mg/kg (Rat)
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# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<b>N,N-dimethylformamide (68-12-2)</b>	
LD50 dermal rat	1100 mg/kg (Rat)
LC50 inhalation rat (mg/l)	5.9 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	1948 ppm/4h (Rat)

<b>pipерidine (110-89-4)</b>	
LD50 dermal rabbit	276 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	1.5 - 3 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	2000 - 4000 ppm/4h (Rat)

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

<b>N,N-dimethylformamide (68-12-2)</b>	
IARC group	3 - Not Classifiable

Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified

Specific target organ toxicity (repeated exposure)	: Not classified
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Aspiration hazard	: Not classified
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Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met. Toxic in contact with skin. Toxic if inhaled.
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Symptoms/injuries after inhalation	: Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation.
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Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin.
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## SECTION 12: Ecological information

### 12.1. Toxicity

<b>N,N-dimethylformamide (68-12-2)</b>	
LC50 fish 1	9800 mg/l 96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> )
EC50 Daphnia 1	1300 mg/l (48 h; <i>Daphnia magna</i> )
LC50 fish 2	6300 mg/l (96 h; <i>Lepomis macrochirus</i> )
TLM fish 1	10.2 ppm 96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> )
Threshold limit algae 1	10 mg/l ( <i>Scenedesmus quadricauda</i> )
Threshold limit algae 2	0.5 mg/l ( <i>Selenastrum capricornutum</i> )

<b>pipерidine (110-89-4)</b>	
LC50 fish 1	46 - 100 mg/l (96 h; <i>Leuciscus idus</i> )
LC50 other aquatic organisms 1	10 - 100 mg/l (96 h)
EC50 Daphnia 1	10 mg/l (48 h; <i>Daphnia magna</i> )
Threshold limit other aquatic organisms 1	10 - 100,96 h

### 12.2. Persistence and degradability

<b>PIPERIDINE/20% IN DMF</b>	
Persistence and degradability	Not established.

<b>N,N-dimethylformamide (68-12-2)</b>	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Photodegradation in the air.
Biochemical oxygen demand (BOD)	0.9 g O <sub>2</sub> /g substance
Chemical oxygen demand (COD)	0.3645 g O <sub>2</sub> /g substance
ThOD	1.863 g O <sub>2</sub> /g substance
BOD (% of ThOD)	0.49 % ThOD

<b>pipерidine (110-89-4)</b>	
Persistence and degradability	Readily biodegradable in water.

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 12.3. Bioaccumulative potential

PIPERIDINE/20% IN DMF	
Bioaccumulative potential	Not established.
N,N-dimethylformamide (68-12-2)	
BCF fish 1	0.3-1.2,Cyprinus carpio; Test duration: 8 weeks
Log Pow	-1.01 (Experimental value)
Bioaccumulative potential	Bioaccumulation: not applicable.
piperidine (110-89-4)	
Log Pow	0.84
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

### 12.4. Mobility in soil

N,N-dimethylformamide (68-12-2)	
Surface tension	0.036 N/m (25 °C)

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to approved waste facility.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Hazardous waste due to toxicity. Avoid release to the environment.

## SECTION 14: Transport information

In accordance with DOT

Transport document description : UN2920 Corrosive liquids, flammable, n.o.s., 8, II

UN-No.(DOT) : 2920

DOT NA no. : UN2920

DOT Proper Shipping Name : Corrosive liquids, flammable, n.o.s.

Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136

Hazard labels (DOT) : 8 - Corrosive  
3 - Flammable liquid



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.  
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.  
T11 - 6 178.274(d)(2) Normal..... 178.275(d)(3)  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.  
TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

DOT Packaging Exceptions (49 CFR 173.xxx)	: None
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 243
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L
DOT Vessel Stowage Location	: C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 25 - Shade from radiant heat, 40 - Stow "clear of living quarters"

### Additional information

Other information : No supplementary information available.

### ADR

Transport document description : UN CORROSIVE LIQUID, FLAMMABLE, N.O.S.

### Transport by sea

UN-No. (IMDG) : 2920  
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.  
Class (IMDG) : 8 - Corrosive substances  
Packing group (IMDG) : II - substances presenting medium danger

### Air transport

UN-No. (IATA) : 2920  
Proper Shipping Name (IATA) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.  
Class (IATA) : 8 - Corrosives  
Packing group (IATA) : II - Medium Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### N,N-dimethylformamide (68-12-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on SARA Section 313 (Specific toxic chemical listings)

RQ (Reportable quantity, section 304 of EPA's List of Lists) :	100 lb
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#### piperidine (110-89-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

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

Not classified

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

Not classified

#### 15.2.2. National regulations

No additional information available

# PIPERIDINE/20% IN DMF

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 15.3. US State regulations

#### N,N-dimethylformamide (68-12-2)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

#### pipeiridine (110-89-4)

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

## SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled
H332	Harmful if inhaled

SDS US (GHS HazCom 2012)

*AmericanBio, Inc. does not make any representations, guaranties or warranties as to the accuracy of the information provided in this Safety Data Sheet, which has been provided by a third party, is made in accordance with United States Global Harmonization System (GHS) initiative HAZCOM 2012 (Federal Register, Vol. 77, No. 58, Monday March 26, 2012/Rules and Regulations), and is intended only to describe the product for the purposes of health, safety and environmental requirements. It is expressly understood and agreed that AmericanBio, Inc. shall in no way be deemed or held to be obligated, liable, or accountable upon or under any guaranties or warranties, express or implied, statutory, by operation of law, or otherwise, in any manner or form, including any implied warranty of merchantability or fitness for a particular purpose, that in any way relates to or arises out of the information provided in this Safety Data Sheet.*