

SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.1
Prepared on : 30.03.2019
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SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name N,N-Dimethylformamide
Product Number PSR36269 / PSR3492 / PSR38225 / PSR44245
Brand PureSynth research chemicals
CAS No. 68-12-2

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

Identified uses : Solvent for analytical purpose

1.3 Details of the supplier of the safety data sheet

Company PureSynth Research Chemicals GmbH
64683 Einhausen Marie-Curie-StraBe. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Eye irritation (Category 2), H319

Reproductive toxicity (Category 1B), H360D

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

H226 Flammable liquid and vapor
H312 + H332 Harmful in contact with skin or if inhaled
H319 Causes serious eye irritation.
H360D May damage the unborn child

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and Other ignition sources. No smoking.

P280 Wear protective gloves/ protective clothing/ eye protection/ face Protection/ hearing protection.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated Clothing. Rinse skin with water.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable For breathing. Call a POISON CENTER/ doctor.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 Supplemental Hazard Statements none

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.
 Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
-	C ₃ H ₇ NO	68-12-2
Component	Classification	Concentration
N,N-dimethylformamide	Acute toxicity estimate Acute inhalation toxicity (vapour): 11,1 mg/l Acute dermal toxicity: 1.500 mg/kg	>= 90 - <= 100

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media	Water Foam Carbon dioxide (CO ₂) Dry powder
Suitable extinguishing media	
Special hazards arising from the substance or mixture	Carbon oxides Nitrogen oxides (NO _x) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapors possible in the event of fire.
Advice for fire-fighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, and consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons. Storage class (TRGS 510): 3, Flammable liquids
Specific end use(s)	Recommended storage temperature see product label. Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	No data available
Exposure controls	
Appropriate engineering controls	No data available.
Personal protective equipment:	
Eye / face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.
Skin protection	Flame retardant antistatic protective clothing.
Body Protection	Flame retardant antistatic protective clothing.
Respiratory protection	required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: : Filter A-(P2) The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented
Control of environmental exposure	Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid Colour: Colourless
Odour	Amine-like
pH – Value	7 at 200 g/l at 20 °C
Density	0.944 g/mL
Boiling Point	153 °C
Melting Point	-61 °C
Solubility in water	1.000 g/l at 20 °C - completely miscible at 20 °C soluble
Flash point	57.5 °C - closed cup
Vapour pressure	3.77 hPa at 20 °C
Auto -ignition temperature	435 °C at 1.013 hPa - DIN 51794
Vapour density	2.52 - (Air = 1.0)
Flammability (solid, gas)	No data available
Evaporation rate	No data available.
Partition coefficient: n- octanol / water	Log Pow: -0.85 at 25 °C - Bioaccumulation is not expected.
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0.86 mPa.s at 20 °C
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 2.2 %(V)
Oxidizing properties	No data available

Other safety information:

Relative vapour density: 2.52 - (Air = 1.0)

Self-ignition: 435 °C 1.013 hPa Method: DIN 51794

SECTION 10: Stability and reactivity

Reactivity	Vapor/air-mixtures are explosive at intense warming.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
Possibility of hazardous reactions	Violent reactions possible with: Alkali metals Halogens halides Reducing agents triethylaluminium nitrates metallic oxides non-metallic oxides Halogenated hydrocarbon Isocyanides sodium Sodium borohydride hydrides Oxidizing agents Oxides of phosphorus A risk of explosion and/or of toxic gas formation exists with the following substances: azides Bromine Chlorine chromium(VI) oxide potassium permanganate triethylaluminium chlorates Halogenated hydrocarbon with Iron
Condition to avoid	Heating
Incompatible materials	No data available
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - male and female - 3.010 mg/kg (OECD Test Guideline 401) Symptoms: Gastrointestinal disturbance Acute toxicity estimate Inhalation - 4 h - 11,1 mg/l (Expert judgment) Remarks: (Regulation (EC) No 1272/2008, Annex VI) LD50 Dermal - Rabbit - 1.500 mg/kg Remarks: (Regulation (EC) No 1272/2008, Annex VI) (IUCLID)
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 20 h Remarks: (ECHA)
Serious eye damage/eye irritation	Eyes - Rabbit

	Result: Eye irritation
	Remarks: (ECHA)
	(Regulation (EC) No 1272/2008, Annex VI)
Respiratory or skin sensitization	Local lymph node assay (LLNA) - Mouse
	Result: negative
	(OECD Test Guideline 406)
Germ cell mutagenicity	Test Type: sister chromatid exchange assay
	Test system: Chinese hamster ovary cells
	Metabolic activation: with and without metabolic activation
	Result: negative
	Remarks: (ECHA)
	Test Type: unscheduled DNA synthesis assay
	Test system: human diploid fibroblasts
	Metabolic activation: with and without metabolic activation
	Result: negative
	Remarks: (ECHA)
	Test Type: Ames test
	Test system: Salmonella typhimurium
	Metabolic activation: with and without metabolic activation
	Result: negative
	Remarks: (ECHA)
	Test Type: Micronucleus test
	Species: Mouse
	Cell type: Bone marrow
	Application Route: Intraperitoneal injection
	Result: negative
	Remarks: (ECHA)
	Test Type: dominant lethal test
	Species: Rat
	Application Route: Inhalation
	Result: negative
	Remarks: (ECHA)
	Test Type: dominant lethal test
	Species: Mouse
	Application Route: Intraperitoneal
	Result: negative
	Remarks: (ECHA)
	Test Type: Micronucleus test
	Species: Mouse Application Route: Intraperitoneal
	Result: negative
	Remarks: (ECHA)
Carcinogenicity	No data available
Reproductive toxicity	May damage the unborn child.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	Repeated dose toxicity - Rat - male and female - Oral - 28 d - NOEL (No observed adverse effect level) - 238 mg/kg - LOEL (Lowest observed adverse effect level) - 475 mg/kg

Remarks: Subacute toxicity
 RTECS: LQ2100000
 Vomiting
 Diarrhea
 Abdominal pain
 Warning: intolerance for alcohol can occur up to 4 days after dimethylformamide exposure.
 N, N-dimethylformamide is considered to be a potent liver toxin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
 After absorption:
 Headache
 Dizziness
 Drowsiness
 Damage to:
 Kidney
 Liver
 This substance should be handled with particular care.

SECTION 12: Ecological information

Toxicity

Toxicity to fish flow-through test LC50 - Lepomis macrochirus (Bluegill sunfish) - 7.100 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates (OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) -> 1.000 mg/l - 72 h (DIN 38412).

Toxicity to bacteria static test EC50 - Vibrio fischeri - 12.300 - 17.500 mg/l - 5 min
 Remarks: (ECHA).

Persistence and degradability

Biodegradability

aerobic - Exposure time 21 d
 Result: 100 % - Readily biodegradable.
 (OECD Test Guideline 301E)

Biochemical Oxygen Demand (BOD)

900 mg/g
 Remarks: (Lit.)

Theoretical oxygen demand

1.863 mg/g
 Remarks: (Lit.)

Bio accumulative potential

No data available

Bioaccumulation

Cyprinus carpio (Carp) - 56 d
 At 25 °C - 0,002 mg/l(N,N-dimethylformamide). Bio concentration factor (BCF): 0,3 - 1,2
 (OECD Test Guideline 305C). Remarks: Does not significantly accumulate in organisms.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at Levels of 0.1% or higher.

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste.
Products	Handle uncleaned containers like the product itself.
Contaminated packaging	No data available

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	2265	N,N-DIMETHYLFORMAMIDE	3	III	No
IMDG	2265	N,N-DIMETHYLFORMAMIDE	3	III	No
IATA	2265	N,N-Dimethylformamide	3	III	No

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3 Number on list 40 Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor. N,N-dimethylformamide
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	N,N-dimethylformamide
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c FLAMMABLE LIQUIDS

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.