

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

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

1.1 Product identifier

Identification of the substance

Hexamethylphosphoramide-d18

Registration number (REACH)

this information is not available

CAS number

51219-90-0

Alternative name(s)

Hexamethylphosphoramide

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

Relevant identified uses

laboratory and analytical use
product and process oriented research and development
the product is intended for research, analysis and scientific education
laboratory chemical

HS code

2845.90.

1.3 Details of the supplier of the safety data sheet

Zeochem AG
Joweid 5, CH-8630 Rüti
Switzerland

Telephone: +41 44 922 93 93
e-Mail: info@zeochem.com
Website: <https://www.zeochem.com>

1.4 Emergency telephone number

Poison centre			
Country	Name	Telephone	
Switzerland	Toxzentrum Zürich / Tox. Info Suisse	+41 44 251 51 51 / CH: 145 - 24h/7d	
United States	CHEMTREC USA	+1 800 424 9300 - 24h/7d	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	1C	Skin Corr. 1C	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.5	germ cell mutagenicity	1B	Muta. 1B	H340
3.6	carcinogenicity	1B	Carc. 1B	H350

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Safety Data Sheet

Hexamethylphosphoramide- d₁₈

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0
Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word danger

2.2.1.2 Pictograms

GHS05, GHS08	
--------------	--

Hazard statements	
H314	causes severe skin burns and eye damage
H340	may cause genetic defects
H350	may cause cancer

Precautionary statements	
P201	obtain special instructions before use
P260	do not breathe dust/fume/gas/mist/vapours/spray
P280	wear protective gloves/protective clothing/eye protection/face protection/hearing protection
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
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/doctor

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Hexamethylphosphoramide-d18
Identifiers	
CAS No	51219-90-0
EC No	257-063-4
Purity	>90 %

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Specific Conc. Limits	M-Factors	ATE	Exposure route
Skin Corr. 1C; H314: C ≥ 3 % Carc. 1B; H350: C ≥ 0.01 %	-	-	

Molecular formula

C6D18N3OP

Molar mass

197 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO2)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Phosphorus oxides (PxOy)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

Store in a dry place.

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

- Specific designs for storage rooms or vessels

- Storage temperature

Recommended storage temperature: 15 – 20 °C
15 °C

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
DE	hexamethylphosphoric triamide	680-31-9	MAK							H	DFG

Notation

Ceiling-C ceiling value is a limit value above which exposure should not occur
H absorbed through the skin
STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours
time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Type of material

Nitrile

IIR: isobutene-isoprene (butyl) rubber

- Breakthrough times of the glove material

>30 minutes (permeation: level 2)

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Physical state	liquid
Colour	not determined
Odour	characteristic
Melting point/freezing point	7 °C
Boiling point or initial boiling point and boiling range	235 °C
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	105 °C (c.c.) (closed cup)
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined
Solubility(ies)	not determined

Partition coefficient

Partition coefficient n-octanol/water (log value)	0.28
---	------

Vapour pressure	not determined
-----------------	----------------

Density and/or relative density

Density	1.05 g/cm³ at 25 °C
Relative vapour density	6.18 (air = 1)

Particle characteristics	not relevant (liquid)
--------------------------	-----------------------

9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
--	--

Other safety characteristics

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0
Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Refractive index	1.46 – 1.46 (20 °C)
------------------	---------------------

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

GHS of the United Nations, annex 4: May be harmful in contact with skin.

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitisier.

Germ cell mutagenicity

May cause genetic defects.

Carcinogenicity

May cause cancer.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Shall not be classified as presenting an aspiration hazard.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

The substance fulfils the very bioaccumulative criterion.

n-octanol/water (log KOW)	0.28
BCF	3.3

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN 2810
IMDG-Code	UN 2810
ICAO-TI	UN 2810

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0
Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

14.2 UN proper shipping name

ADR/RID/ADN	TOXIC LIQUID, ORGANIC, N.O.S.
IMDG-Code	TOXIC LIQUID, ORGANIC, N.O.S.
ICAO-TI	Toxic liquid, organic, n.o.s.
Technical name	Hexamethylphosphoramide-d18

14.3 Transport hazard class(es)

ADR/RID/ADN	6.1
IMDG-Code	6.1
ICAO-TI	6.1

14.4 Packing group

ADR/RID/ADN	II
IMDG-Code	II
ICAO-TI	II

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

Classification code	T1
Danger label(s)	6.1



Special provisions (SP)	274, 614, 802(ADN)
Excepted quantities (EQ)	E4
Limited quantities (LQ)	100 ml
Transport category (TC)	2
Tunnel restriction code (TRC)	D/E
Hazard identification No	60

International Maritime Dangerous Goods Code (IMDG) - Additional information

Marine pollutant	-
------------------	---

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0
Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Danger label(s)

6.1



Special provisions (SP)

274

Excepted quantities (EQ)

E4

Limited quantities (LQ)

100 mL

EmS

F-A, S-A

Stowage category

B

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Danger label(s)

6.1



Special provisions (SP)

A3, A4, A137

Excepted quantities (EQ)

E4

Limited quantities (LQ)

1 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)			
Name of substance	Name acc. to inventory	CAS No	No
Hexamethylphosphoramide-d18	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
Hexamethylphosphoramide-d18	carcinogenic		28
Hexamethylphosphoramide-d18	germ cell mutagenic (mutagenic)		29
Hexamethylphosphoramide-d18	substances in tattoo inks and permanent make-up		75

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

not listed

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0
Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Water Framework Directive (WFD)

List of pollutants (WFD)			
Name of substance	CAS No	Listed in	Remarks
Hexamethylphosphoramide-d18		a)	
Hexamethylphosphoramide-d18		a)	

Legend

a) Indicative list of the main pollutants

Regulation on persistent organic pollutants (POP)

not listed

National inventories

Country	Inventory	Status
US	TSCA	substance is listed (ACTIVE)

Legend

TSCA Toxic Substance Control Act

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.3	Details of the supplier of the safety data sheet: Zeochem AG Joweid 5, CH-8630 Rüti Switzerland Telephone: +41 44 922 93 93 e-Mail: info@zeochem.com / info@zeochem.ch Website: https://www.zeochem.com	Details of the supplier of the safety data sheet: Zeochem AG Joweid 5, CH-8630 Rüti Switzerland Telephone: +41 44 922 93 93 e-Mail: info@zeochem.com Website: https://www.zeochem.com	yes
1.4		Poison centre: change in the listing (table)	yes
2.3	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of $\geq 0,1\%$.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.	yes
7.2		- Specific designs for storage rooms or vessels	yes
7.2		Storage temperature: Recommended storage temperature: 15 – 20 °C 15 °C	yes
12.6	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a	yes

Safety Data Sheet

Hexamethylphosphoramide-d18

According to Regulation (EC) No. 1907/2006 (REACH)

Version number: GHS 6.0

Replaces version of: 2023-02-06 (GHS 5)

Revision: 2025-06-10

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
	a concentration of $\geq 0,1\%$.	concentration of $\geq 0,1\%$.	
15.1		National inventories: change in the listing (table)	yes

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H340	May cause genetic defects.
H350	May cause cancer.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.