

Safety Data Sheet

Irgacure® 184

Revision date : 2014/07/08

Version: 2.0

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(30472119/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

Irgacure® 184

Recommended use of the chemical and restriction on use

Recommended use*: photoinitiator

* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: photoinitiator

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Aquatic Acute
Combustible Dust

3
Combustible Dust (1)

Hazardous to the aquatic environment - acute
Combustible Dust

Label elements

Signal Word:
Warning

Hazard Statement:

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H402	May form combustible dust concentration in air. Harmful to aquatic life.
Precautionary Statements (Prevention): P273	Avoid release to the environment.
Precautionary Statements (Disposal): P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

The product is under certain conditions capable of dust explosion.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

NOTICE:
This product has no known adverse effect on human health.
Refer to MSDS Section 7 for Dust Explosion information.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
947-19-3	98.0 - 100.0 %	Methanone, (1-hydroxycyclohexyl)phenyl-

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
947-19-3	98.0 - 100.0 %	Methanone, (1-hydroxycyclohexyl)phenyl-

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention.

If on skin:
Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open.

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Seek medical attention.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Seek medical attention if necessary.

Most important symptoms and effects, both acute and delayed

Symptoms: No significant reaction of the human body to the product known.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
dry powder, foam

Unsuitable extinguishing media for safety reasons:
carbon dioxide

Additional information:

Avoid whirling up the material/product because of the danger of dust explosion.

Special hazards arising from the substance or mixture

Hazards during fire-fighting:

harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

Impact Sensitivity:

Height of Fall: 0.80 m

Number of positive 0

reactions:

Assessment: no

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Use personal protective clothing.

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Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable appliance and dispose of.
For large amounts: Contain with dust binding material and dispose of.
Avoid raising dust.

7. Handling and Storage

Precautions for safe handling

Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Closed containers should only be opened in well-ventilated areas.

Protection against fire and explosion:

Avoid dust formation. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

Storage stability:

Storage temperature: $\leq 35^{\circ}\text{C}$

8. Exposure Controls/Personal Protection

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator.

Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:

Chemical resistant protective gloves

Eye protection:

Safety glasses with side-shields. Wear face shield if splashing hazard exists.

General safety and hygiene measures:

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Eye wash fountains and safety showers must be easily accessible.

9. Physical and Chemical Properties

Form:	solid	
Odour:	characteristic	
Odour threshold:		not determined
Colour:	white	

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pH value:	5.7	(1 %(m), 20 - 25 °C) (as suspension)
melting range:	47.5 - 47.7 °C	(OECD Guideline 102)
Boiling point:	316 °C	(OECD Guideline 103)
Flash point:	164 °C	(Directive 92/69/EEC, A.9, closed cup)
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Lower explosion limit:		For solids not relevant for classification and labelling.
Upper explosion limit:		For solids not relevant for classification and labelling.
Autoignition:	424 °C	(Directive 92/69/EEC, A.15)
Vapour pressure:	0.02 Pa	(20 °C) (measured)
Density:	approx. 1.182 g/cm ³	(20 °C) (OECD Guideline 109)
Relative density:	1.182	(20 °C) (OECD Guideline 109)
Bulk density:	480 kg/m ³	
Vapour density:		The product is a non-volatile solid.
Partitioning coefficient n-octanol/water (log Pow):	2.81	(25 °C) (OECD Guideline 107)
Self-ignition temperature:		not self-igniting
Thermal decomposition:	> 300 °C	
Viscosity, dynamic:		Study does not need to be conducted.
Particle size:	D50 549 µm	
% volatiles:		not determined
Solubility in water:	442 mg/l	(20 °C)
Solubility (quantitative):		Unspecified
Molar mass:	204.27 g/mol	
Evaporation rate:		The product is a non-volatile solid.

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:
not fire-propagating

Minimum ignition energy:
(VDI 2263, sheet 1, 2.1.1)
The product is capable of dust explosion.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Dust explosion hazard.

Conditions to avoid

Avoid light. Avoid electro-static charge. Avoid dust formation. Avoid deposition of dust. Avoid sources of ignition.

Incompatible materials

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

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Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

> 300 °C

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Primary routes of entry

Ingestion.

Skin

Inhalation.

Eyes

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Information on: Methanone, (1-hydroxycyclohexyl)phenyl-

Assessment of acute toxicity:

Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Oral

Type of value: LD50

Species: rat (male/female)

Value: > 2,500 mg/kg (OECD Guideline 423)

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 1 mg/l (OECD Guideline 403)

Exposure time: 4 h

An aerosol was tested.

No mortality was observed.

Dermal

Type of value: LD50

Species: rat (male/female)

Value: > 5,000 mg/kg (OECD Guideline 402)

No mortality was observed.

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

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Irritation / corrosion

Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

Information on: Methanone, (1-hydroxycyclohexyl)phenyl-

Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

Skin

Species: rabbit

Result: non-irritant

Method: other

Eye

Species: rabbit

Result: non-irritant

Method: OECD Guideline 405

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Information on: Methanone, (1-hydroxycyclohexyl)phenyl-

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test

Species: guinea pig

Result: Non-sensitizing.

Method: OECD Guideline 406

Aspiration Hazard

not applicable

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: No adverse effects were observed after repeated exposure in animal studies.

Information on: Methanone, (1-hydroxycyclohexyl)phenyl-

Assessment of repeated dose toxicity: No adverse effects were observed after repeated exposure in animal studies.

Genetic toxicity

Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria and mammals.

Information on: Methanone, (1-hydroxycyclohexyl)phenyl-

Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria and mammals.

Carcinogenicity

Assessment of carcinogenicity: No data available concerning carcinogenic effects.

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Reproductive toxicity

Assessment of reproduction toxicity: No data available.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Other Information

(Mice) Phototoxicity: Not phototoxic

Symptoms of Exposure

No significant reaction of the human body to the product known.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) 24 mg/l, Brachydanio rerio (Directive 92/69/EEC, C.1, static)

The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates

EC50 (48 h) 53.9 mg/l, Daphnia magna (OECD Guideline 202, part 1, semistatic)

The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants

EC50 (72 h) 14.4 mg/l (growth rate), Desmodesmus subspicatus (OECD Guideline 201, static)

The statement of the toxic effect relates to the analytically determined concentration.

EC10 (72 h) 2.51 mg/l (growth rate), Desmodesmus subspicatus (OECD Guideline 201, static)

The statement of the toxic effect relates to the analytically determined concentration.

Chronic toxicity to fish

No data available regarding toxicity to fish.

Chronic toxicity to aquatic invertebrates

No data available regarding toxicity to daphnids.

Assessment of terrestrial toxicity

Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 aquatic

activated sludge/EC20 (3 h): > 100 mg/l

The details of the toxic effect relate to the nominal concentration.

Persistence and degradability

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Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

73 % CO₂ formation relative to the theoretical value (28 d) (Directive 84/449/EEC, C.5) (aerobic, activated sludge, domestic)

Assessment of stability in water

In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis)

t_{1/2} 77 h, (7 d) (pH value 7), (OECD Guideline 111, pH7)

Bioaccumulative potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Bioaccumulation potential

Bioconcentration factor: 4 - 12 (56 d), Cyprinus carpio (OECD Guideline 305 C)

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.

Adsorption to solid soil phase is not expected.

13. Disposal considerations

Waste disposal of substance:

Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations.

Container disposal:

Dispose of in accordance with national, state and local regulations. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

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15. Regulatory Information

VOC content:

not determined

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Fire (Combustible Dust);

State regulations

CA Prop. 65:

There are no listed chemicals in this product.

NFPA Hazard codes:

Health : 1 Fire: 1 Reactivity: 0 Special:

HMIS III rating

Health: 1 Flammability: 1 Physical hazard:0

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Aquatic Acute	3	Hazardous to the aquatic environment - acute
Acute Tox.	5 (oral)	Acute toxicity

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2014/07/08

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