

SAFETY DATA SHEET

Photoinitiator 184

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name photoinitiator 184
Chemical name Hydroxycyclohexyl phenyl ketone
CAS number 947-19-3

Recommended use of the chemical and restrictions on use

Application Photoinitiator.
Uses advised against No specific uses advised against are identified.

Details of the supplier of the safety data sheet

Supplier

DONGGUAN BAOXU CHEMICAL TECHNOLOGY LTD
ROOM 1118 CAIJIN BUSINESS BUILDING, NAN CHENG DISTRICT, DONGGUAN, GUANGDONG, CHINA
Tel 769-22821082 Fax 769-22821083 Tel 86-18566530506

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified
Health hazards Not Classified
Environmental hazards Not Classified

Label elements

Hazard statements NC Not Classified
Precautionary statements P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards

Dust may form explosive mixture with air. This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Substances

Product name Omnirad 184

Chemical name Hydroxycyclohexyl phenyl ketone

CAS number 947-19-3

4. First-aid measures

Description of first aid measures

General information	Remove affected person from source of contamination. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. If breathing stops, provide artificial respiration. Get medical attention.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Do not induce vomiting unless under the direction of medical personnel. Rinse nose and mouth with water. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Get medical attention.
Skin Contact	Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash with plenty of soap and water. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.
Eye contact	Remove affected person from source of contamination. Remove any contact lenses and open eyelids wide apart. Rinse with water. Continue to rinse for at least 15 minutes and get medical attention.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue. For personal protection, see Section 8.

Most important symptoms and effects, both acute and delayed

General information	See Section 11 for additional information on health hazards.
Inhalation	Dust may irritate the respiratory system.
Ingestion	May cause discomfort if swallowed.
Skin contact	A single exposure may cause the following adverse effects: Redness. Irritation. Dryness and/or cracking.
Eye contact	Dust in the eyes will cause irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use fire-extinguishing media suitable for the surrounding fire. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards	Dust may form explosive mixture with air. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
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Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Carbon monoxide (CO).
<u>Advice for firefighters</u>	
Protective actions during firefighting	In case of fire: Evacuate area. No action shall be taken without appropriate training or involving any personal risk. Fight fire from safe distance or protected location. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Contain and collect extinguishing water. Avoid the spillage or runoff entering drains, sewers or watercourses. If risk of water pollution occurs, notify appropriate authorities.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	No smoking, sparks, flames or other sources of ignition near spillage. Take precautionary measures against static discharges. Do not touch or walk into spilled material. Avoid inhalation of dust and contact with skin and eyes. Do not enter storage areas or confined spaces unless adequately ventilated. Use suitable respiratory protection if ventilation is inadequate. Wear protective clothing as described in Section 8 of this safety data sheet.
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Environmental precautions

Environmental precautions	Avoid or minimize the creation of any environmental contamination. Avoid the spillage or runoff entering drains, sewers or watercourses. Environmental Manager must be informed of all major spillages. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.
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Methods and material for containment and cleaning up

Methods for cleaning up	Wear protective clothing as described in Section 8 of this safety data sheet. Eliminate all ignition sources if safe to do so. If involved in a fire, shut off flow if it can be done without risk. Provide adequate ventilation. Do not touch or walk into spilled material. To prevent release, place container with damaged side up. Remove spillage with vacuum cleaner or collect with a shovel and broom, or similar. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.
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Reference to other sections	See Section 1 for emergency contact information. For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.
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7. Handling and storage

Precautions for safe handling

Usage precautions	For use in industrial installations or professional treatment only. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product. Wear protective clothing as described in Section 8 of this safety data sheet. Do not handle broken packages without protective equipment. Avoid breathing dust. Mechanical ventilation or local exhaust ventilation may be required. If ventilation is inadequate, suitable respiratory protection must be worn. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Do not empty into drains.
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Advice on general occupational hygiene

Do not smoke in work area. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Take off immediately all contaminated clothing and wash it before reuse. Eye wash facilities and emergency shower must be available when handling this product. Warn cleaning personnel of any hazardous properties of the product.

Conditions for safe storage, including any incompatibilities**Storage precautions**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep in a cool, well ventilated place. Protect from freezing and direct sunlight. Keep away from food, drink and animal feeding stuffs. Keep away from oxidizing materials, heat and flames. Store in a demarcated bunded area to prevent release to drains and/or watercourses.

Storage class

Chemical storage.

Specific end uses(s)**Specific end use(s)**

The identified uses for this product are detailed in Section 1.

8. Exposure Controls/personal protection**Control parameters****Occupational exposure limits**

None

Exposure controls**Protective equipment****Appropriate engineering controls**

Provide adequate ventilation.

Eye/face protection

Wear tight-fitting, chemical splash goggles or face shield.

Hand protection

Wear protective gloves. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. For exposure up to 4 hours, wear gloves made of the following material: Nitrile rubber. Chloroprene rubber. Thickness: > 0.4 mm The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected.

Other skin and body protection

Wear apron or protective clothing in case of contact.

Hygiene measures

Good personal hygiene procedures should be implemented. Wash promptly if skin becomes contaminated. Take off immediately all contaminated clothing and wash it before reuse. Change work clothing daily before leaving workplace. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Provide shower facilities near the workplace.

Respiratory protection

Respiratory protection not required.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Appearance	Solid.
Color	White.
Odor	Characteristic.
Odor threshold	Not determined.
pH	pH (diluted solution): 5.7 (1%)
Melting point	47.5 - 47.7°C
Initial boiling point and range	316°C @ 1013 hPa
Flash point	164°C CC (Closed cup).
Evaporation rate	Scientifically unjustified.
Flammability (solid, gas)	Not relevant.
Upper/lower flammability or explosive limits	Not relevant.
Vapor pressure	0.02 Pa @ 20°C
Vapor density	Not determined.
Relative density	1.182 @ 20°C
Bulk density	480 kg/m ³
Solubility(ies)	442 mg/l water @ 20°C
Partition coefficient	log Pow: 2.81
Auto-ignition temperature	424°C
Decomposition Temperature	>300°C
Viscosity	Not relevant.
Explosive properties	Not considered to be explosive.
Oxidizing properties	Does not meet the criteria for classification as oxidizing.
Other information	Dust may form explosive mixture with air.
Particle size	549 µm
Molecular weight	204.27 g/mol

10. Stability and reactivity

Reactivity	The reactivity data for this product will be typical of those for the following class of materials: Strong acids. Strong alkalis. Oxidizing agents.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	No potentially hazardous reactions known.

Conditions to avoid	Keep away from heat, sparks and open flame. Avoid exposure to high temperatures or direct sunlight.
Materials to avoid	Strong acids. Strong alkalis. Oxidizing agents.
Hazardous decomposition products	Does not decompose when used and stored as recommended.

11. Toxicological information

Information on toxicological effects

Toxicological effects The toxicity of this substance has been assessed during REACH registration.

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ > 2500 mg/kg, Oral, Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 5000 mg/kg, Dermal, Rat

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LC₅₀ >1 mg/l, Inhalation, Rat

Skin corrosion/irritation

Skin corrosion/irritation Based on available data the classification criteria are not met.

Animal data

Dose: 0.5g, 24 hours, Rabbit Erythema/eschar score: No erythema (0). Oedema score: No oedema (0).

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitization

Respiratory sensitization Based on available data the classification criteria are not met.

Skin sensitization

Skin sensitization Guinea pig maximization test (GPMT) - Guinea pig: Not sensitizing.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative.

Genotoxicity - in vivo Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity No data available.

Reproductive toxicity

Reproductive toxicity - development - NOAEL: 900 mg/kg/day, Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Target organs Not relevant.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met. NOAEL 300 mg/kg/day, Oral, Rat

Target organs No specific target organs known.

Aspiration hazard

Aspiration hazard	Not relevant.
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General information

No specific health hazards known.

12. Ecological Information

Ecotoxicity	The product is not expected to be hazardous to wastewater treatment processes.
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Acute toxicity - fish	LC ₅₀ , 96 hours: 24 mg/l, Brachydanio rerio (Zebra Fish)
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Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 53.9 mg/l, Daphnia magna
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Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 14.4 mg/l, Desmodium subspicatus
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Acute toxicity - microorganisms	EC ₅₀ , 3 hours: > 100 mg/l, Activated sludge
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Chronic toxicity - fish early life stage	No data available.
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Chronic toxicity - aquatic invertebrates	No data available.
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Toxicity to terrestrial plants	Scientifically unjustified.
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Persistence and degradability

Persistence and degradability	The substance is readily biodegradable.
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Phototransformation	Water - DT ₅₀ : 129 hours Estimated value.
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Stability (hydrolysis)	pH7 - Half-life : 77 days @ 50°C
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Biodegradation	Water - Degradation 80%: 28 days
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Bioaccumulative potential

Bio-Accumulative Potential	BCF: 4 - 12, Cyprinus carpio (Common carp)
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Partition coefficient	log Pow: 2.81
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Mobility in soil

Mobility	Slightly soluble in water.
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Adsorption/desorption coefficient	Water - Koc : 82.83
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Henry's law constant	0.282 Pa m ³ /mol @ 25°C
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Surface tension	60.2 mN/m @ 20°C
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Other adverse effects

Other adverse effects	None known.
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13. Disposal considerations**Waste treatment methods**

General information	When handling waste, the safety precautions applying to handling of the product should be considered. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. Do not cut or weld used containers unless they have been thoroughly cleaned internally.
Disposal methods	Dispose of contents/container in accordance with national regulations. Waste is suitable for incineration.

14. Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).
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UN Number

Not applicable.

UN No. (DOT)	Not applicable.
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UN proper shipping name

Not applicable.

Proper shipping name (DOT)	Not applicable.
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Transport hazard class(es)

No transport warning sign required.

DOT transport labels

No transport warning sign required.

Packing group

Not applicable.

DOT packing group	Not applicable.
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Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not applicable.

DOT reportable quantity	Not applicable.
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DOT TIH Zone	Not applicable.
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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
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15. Regulatory information

Regulatory References	U.S. DOL, OSHA, 29 CFR 1910.1200, The Hazard Communication Standard (HCS).
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US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Not listed.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not listed.

SARA 313 Emission Reporting

Not listed.

CAA Accidental Release Prevention

Not listed.

FDA - Essential Chemical

Not listed.

FDA - Precursor Chemical

Not listed.

SARA (311/312) Hazard Categories

Not listed.

OSHA Highly Hazardous Chemicals

Not listed.

US State Regulations**California Proposition 65 Carcinogens and Reproductive Toxins**

Not listed.

California Air Toxics "Hot Spots" (A-I)

Not listed.

California Air Toxics "Hot Spots" (A-II)

Not listed.

California Directors List of Hazardous Substances

Not listed.

Massachusetts "Right To Know" List

Not listed.

Rhode Island "Right To Know" List

Not listed.

Minnesota "Right To Know" List

Not listed.

New Jersey "Right To Know" List

Not listed.

Pennsylvania "Right To Know" List

Not listed.

Inventories

EU - EINECS/ELINCS

EINECS

Canada - DSL/NDSL

DSL

US - TSCA

Present.

US - TSCA 12(b) Export Notification

Not listed.

Australia - AICS

All the ingredients are listed or exempt.

Japan - MITI

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines - PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

Taiwan - NECI

Present.

16. Other information

Key literature references and sources for data REACH dossier information. Supplier's information.

Revision comments	Product name change.
Revision date	10/11/2017
Revision	2
Supersedes date	5/23/2017
SDS No.	752
SDS status	Approved.
NFPA - health hazard	Irritation, minor residual injury. (1)
NFPA - flammability hazard	Burns only if pre-heated. (1)
NFPA - instability hazard	Unstable if heated. (1)
ACA HMIS Health rating.	Slight hazard. (1)
ACA HMIS Flammability rating.	Burns only if pre-heated. (1)

ACA HMIS Physical hazard rating. Normally stable. (0)

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.