

Safety data sheet

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BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 04.01.2016

Version: 5.0

Product: **Irgacure® 907**

(ID no. 30481120/SDS_GEN_EU/EN)

Date of print 05.01.2016

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

1.1. Product identifier

Irgacure® 907

Chemical name: 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one

INDEX-Number: 606-041-00-6

CAS Number: 71868-10-5

REACH registration number: 01-0000015054-80-0012

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

Relevant identified uses: photoinitiator

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Regional Business Unit Dispersions and
Resins Europe

Telephone: +49 621 60-90799

E-mail address: ed-psr@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Acute Tox. 4 (oral)
Repr. 2 (fertility)
Repr. 1B (unborn child)
Aquatic Chronic 2

H302, H360Df, H411

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:



Signal Word:

Danger

Hazard Statement:

H302	Harmful if swallowed.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P301 + P330	IF SWALLOWED: rinse mouth.
P391	Collect spillage.

Precautionary Statements (Storage):

P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

According to Regulation (EC) No 1272/2008 [CLP]

Hazard determining component(s) for labelling: 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE

2.3. Other hazardsAccording to Regulation (EC) No 1272/2008 [CLP]

The product is under certain conditions capable of dust explosion.

SECTION 3: Composition/Information on Ingredients**3.1. Substances**Chemical nature

2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one (Content (W/W): 100 %)

CAS Number: 71868-10-5

EC-Number: 400-600-6

INDEX-Number: 606-041-00-6

Hazardous ingredients (GHS)

according to Regulation (EC) No. 1272/2008

| morpholine

Content (W/W): $\geq 0\%$ - $< 1\%$
 CAS Number: 110-91-8
 EC-Number: 203-815-1
 INDEX-Number: 613-028-00-9

Flam. Liq. 3
 Acute Tox. 3 (Inhalation - vapour)
 Acute Tox. 4 (oral)
 Acute Tox. 3 (dermal)
 Skin Corr./Irrit. 1B
 Eye Dam./Irrit. 1
 H226, H311, H331, H302, H314

Differing classification according to current knowledge and the criteria given in Annex I of Regulation (EC) No. 1272/2008

Flam. Liq. 3
 Acute Tox. 3 (Inhalation - vapour)
 Acute Tox. 4 (oral)
 Acute Tox. 3 (dermal)
 Skin Corr./Irrit. 1A
 Eye Dam./Irrit. 1
 H226, H311, H331, H302, H314

2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one

Content (W/W): $\geq 75\%$ - $\leq 100\%$
 CAS Number: 71868-10-5
 EC-Number: 400-600-6
 INDEX-Number: 606-041-00-6

Acute Tox. 4 (oral)
 Repr. 2 (fertility)
 Repr. 1B (unborn child)
 Aquatic Chronic 2
 H302, H360Df, H411

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Immediately remove contaminated clothing.

If inhaled:

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

On skin contact:

Wash thoroughly with soap and water.

On contact with eyes:

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

On ingestion:

Rinse mouth immediately and then drink plenty of water, seek medical attention.

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

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

4.3. Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Fire-Fighting Measures

5.1. 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.

5.2. Special hazards arising from the substance or mixture

harmful vapours

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

5.3. Advice for fire-fighters

Special protective equipment:

Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Use personal protective clothing.

6.2. Environmental precautions

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

6.3. 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.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage**7.1. Precautions for safe handling**

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

Protection against fire and explosion:

Avoid dust formation. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection**8.1. Control parameters**Components with occupational exposure limits

110-91-8: morpholine

STEL value 72 mg/m³ ; 20 ppm (OEL (EU))

indicative

TWA value 36 mg/m³ ; 10 ppm (OEL (EU))

indicative

PNEC

freshwater: 0.0172 mg/l

marine water: 0.00172 mg/l

intermittent release: 0.016 mg/l

STP: 1 mg/l

sediment (freshwater): 1.13864 mg/kg

sediment (marine water): 0.113864 mg/kg

soil: 0.123 mg/kg

oral (secondary poisoning):

No PNEC oral derived, as accumulation in organisms is not to be expected.

DNEL

worker:

Long-term exposure- systemic effects, dermal: 0.4 mg/kg

consumer:

Long-term exposure- systemic effects, dermal: 0.2 mg/kg

consumer:

Long-term exposure- systemic effects, oral: 0.2 mg/kg

worker:

Long-term exposure- systemic effects, Inhalation: 2.28 mg/m³

consumer:

Long-term exposure- systemic effects, Inhalation: 0.7 mg/m³

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

Suitable respiratory protection for lower concentrations or short-term effect: Particle filter with high efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P3 or FFP3).

Hand protection:

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form:	powder	
Colour:	white to light beige	
Odour:	mild	
Odour threshold:	not determined	
pH value:	not applicable	
Melting point:	74.6 °C	(Directive 84/449/EEC, A.1)
Boiling point:	not applicable	
decomposition point:	> 190 °C	(OECD Guideline 103)
Sublimation point:	70 - 75 °C	
Flash point:	165 °C	(DIN 51758)
Evaporation rate:	not determined	
Flammability:	not highly flammable	
Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Ignition temperature:	380 °C	
Vapour pressure:	0.0002 Pa (25 °C)	(OECD Guideline 104)
Density:	1.21 g/cm ³ (33 °C)	(OECD Guideline 109)
Relative density:	approx. 1.21 (33 °C)	(Directive 92/69/EEC, A.3)
Relative vapour density (air):	The product is a non-volatile solid.	
Solubility in water:	0.0179 g/l (20 °C)	(Directive 84/449/EEC, A.6)
Solubility (quantitative) solvent(s):	standard fat 162 g/kg (37 °C)	
Partitioning coefficient n-octanol/water (log K _{ow}):	3.09 (25 °C; pH value: 7)	(Directive 84/449/EEC, A.8)

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Self ignition: not self-igniting

Test type: Spontaneous self-ignition at room-temperature.

not applicable

Test type: Self-ignition at high temperatures.

Thermal decomposition: > 200 °C

Viscosity, dynamic:

Study does not need to be conducted.

Explosion hazard: not explosive

(other)

Fire promoting properties: not fire-propagating

(Directive 84/449/EEC, A.17)

9.2. Other information

Self heating ability: It is not a substance capable of spontaneous heating.

(VDI 2263, sheet 1, 1.4.1)

Minimum ignition energy:

(DIN EN 13821)

The product is capable of dust explosion.

Bulk density: 500 kg/m³

Adsorption/water - soil: KOC: 626; log KOC: 2.8

(OECD Guideline 121)

Surface tension: 60 mN/m
(20 °C; 10 g/l)

(Directive 84/449/EEC, A.5)

Grain size distribution 22.1 µm

(D50, other (measured))

Molar mass: 279.40 g/mol

SECTION 10: Stability and Reactivity**10.1. Reactivity**

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

Corrosion to metals: Corrosive effects to metal are not anticipated.

Formation of flammable gases: Remarks: Forms no flammable gases in the presence of water.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

Dust explosion hazard.

10.4. Conditions to avoid

Avoid light. Avoid electro-static discharge.

10.5. Incompatible materials

Substances to avoid:

strong acids, strong bases, strong oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:

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

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

Virtually nontoxic after a single skin contact. Of moderate toxicity after single ingestion.

Experimental/calculated data:

LD50 rat (oral): 1,984 mg/kg (OECD Guideline 401)

(by inhalation): Not inhalable due to the physico-chemical properties of the product.

LD50 rat (dermal): > 2,000 mg/kg (OECD Guideline 402)

No mortality was observed.

Irritation

Assessment of irritating effects:

Not irritating to the skin. Not irritating to the eyes.

Experimental/calculated data:

Skin corrosion/irritation rabbit: non-irritant (OECD Guideline 404)

Serious eye damage/irritation rabbit: non-irritant (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:

Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

Guinea pig maximization test guinea pig: Non-sensitizing. (OECD Guideline 406)

Germ cell mutagenicity

Assessment of mutagenicity:

The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in a test with mammals.

Carcinogenicity

Assessment of carcinogenicity:

No data available concerning carcinogenic effects.

Reproductive toxicity

Assessment of reproduction toxicity:

Causes impairment of fertility in laboratory animals.

Developmental toxicity

Assessment of teratogenicity:

The substance caused malformations/developmental toxicity in laboratory animals.

Specific target organ toxicity (single exposure)

Remarks: No data available.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

Repeated exposure to large quantities may affect certain organs.

Aspiration hazard

not applicable

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. Toxic to aquatic organisms based on long-term (chronic) toxicity study data.

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) 9 mg/l, *Brachydanio rerio* (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:

EC50 (24 h) 15.3 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

Aquatic plants:

EC50 (72 h) 1.6 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 201, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The statement of the toxic effect relates to the analytically determined concentration.

No observed effect concentration (72 h) 0.86 mg/l (growth rate), *Desmodesmus subspicatus* (OECD Guideline 201, static)

The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:

EC20 (3 h) > 100 mg/l, activated sludge, domestic (Directive 88/302/EEC, part C, p. 118, static)

Chronic toxicity to fish:

No data available regarding toxicity to fish.

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (21 d) 1 mg/l, *Daphnia magna* (OECD Guideline 211, semistatic)

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

Assessment of terrestrial toxicity:

Toxic effects have been observed in studies with terrestrial plants.

Soil living organisms:

LC50 (14 d) > 1,000 mg/kg, *Eisenia foetida* (OECD Guideline 207, artificial soil)

Terrestrial plants:

EC50 (14 d) 222 mg/kg, *Brassica napus* (OECD Guideline 208)

No observed effect concentration (14 d) 12.3 mg/kg, *Brassica napus* (OECD Guideline 208)

Other terrestrial non-mammals:

No data available.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H₂O):

Not readily biodegradable (by OECD criteria). Poorly biodegradable.

Elimination information:

< 1 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic)

Assessment of stability in water:

In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis):

< 10 % (5 d), (Directive 92/69/EEC, C.7, pH 7)

In contact with water the substance will hydrolyse slowly.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential:

Bioconcentration factor: < 10.1 (56 d), *Oryzias latipes* (other)

12.4. Mobility in soil

Assessment transport between environmental compartments:

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

Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

12.6. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.7. Additional information

Add. remarks environm. fate & pathway:

Treatment in biological waste water treatment plants has to be performed according to local and administrative regulations.

Other ecotoxicological advice:

Do not discharge product into the environment without control.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:

Uncontaminated packaging can be re-used.

Packs that cannot be cleaned should be disposed of in the same manner as the contents.

SECTION 14: Transport Information

Land transport

ADR

UN number UN3077
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(contains 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: Tunnel code: E

RID

UN number UN3077
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(contains 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: None known

Inland waterway transport

ADN

UN number UN3077
UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(contains 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE)
Transport hazard class(es): 9, EHSM
Packing group: III
Environmental hazards: yes
Special precautions for user: None known

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

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UN number:	UN 3077
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
	Marine pollutant: YES
Special precautions for user:	None known

Air transport

IATA/ICAO

UN number:	UN 3077
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains 2-METHYL-1-(4-METHYLTHIOPHENYL)-2-MORPHOLINOPROPAN-1-ONE)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

14.1. UN number

See corresponding entries for "UN number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

14.4. Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

SECTION 15: Regulatory Information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2. Chemical Safety Assessment

| Chemical Safety Assessment performed

SECTION 16: Other Information

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
Repr.	Reproductive toxicity
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Flam. Liq.	Flammable liquids
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
H302	Harmful if swallowed.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H411	Toxic to aquatic life with long lasting effects.
H226	Flammable liquid and vapour.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.