



XCELTHERM MK-1

Safety Data Sheet

Issue date: 8/8/1993

Revision date: 8/5/2022

Supersedes: 6/29/2022

Version: 11.0

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification

1.1. Identification

Trade name XCELTHERM MK-1

1.2. Recommended use and restrictions on use

Use of the substance/mixture: Heat Transfer Fluids
Recommended use: Heat transfer fluids

1.3. Supplier

Manufacturer

Radco Industries Inc.
CAGE Code 6ZS16
700 Kingsland Drive
Batavia, Illinois 60510
United States
T (630) 232-7966
www.radcoind.com

Manufacturer

Radco Industries Inc.
CAGE Code 1RVC4
39W930 Midan Drive
Elburn, Illinois 60147
United States
T (630) 232-7966
www.radcoind.com

1.4. Emergency telephone number

Emergency number: For Chemical Emergency Call CHEMTREC 24hr/day 7days/week
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-741-5970
(collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

| | | |
|--|------|---|
| Skin corrosion/irritation Category 2 | H315 | Causes skin irritation |
| Serious eye damage/eye irritation Category 2 | H319 | Causes serious eye irritation |
| Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation | H335 | May cause respiratory irritation |
| Specific target organ toxicity (repeated exposure) Category 2 | H373 | May cause damage to organs (respiratory system) through prolonged or repeated exposure (Inhalation) |

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

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GHS US labeling

Hazard pictograms (GHS US):



Signal word (GHS US):

Warning

Hazard statements (GHS US):

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H373 - May cause damage to organs (respiratory system) through prolonged or repeated exposure (Inhalation)

Precautionary statements (GHS US):

P260 - Do not breathe fume, mist, vapors, dust, gas, spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear eye protection, protective clothing.

P302+P352 - If on skin: Wash with plenty of Gently wash with plenty of soap and water..

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 - Call a POISON CENTER, a doctor if you feel unwell.

P314 - Get medical advice/attention if you feel unwell.

P332+P313 - If skin irritation occurs: Get medical advice/attention.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P501 - Dispose of contents/container to an approved waste disposal plant.

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification: None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

| Name | Product identifier | % | GHS US classification |
|----------------|--------------------|-------------|--|
| Diphenyl oxide | CAS-No.: 101-84-8 | 72.5 – 73.5 | STOT RE 2, H373 Aquatic Acute 1, H400 |

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| | | | |
|----------|------------------|-------------|--|
| Biphenyl | CAS-No.: 92-52-4 | 26.5 – 27.5 | Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 |
|----------|------------------|-------------|--|

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

| | |
|--|--|
| First-aid measures general: | Call a poison center/doctor/physician if you feel unwell. |
| First-aid measures after inhalation: | Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell. |
| First-aid measures after skin contact: | Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. |
| First-aid measures after eye contact: | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. |
| First-aid measures after ingestion: | Call a poison center/doctor/physician if you feel unwell. |

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and Harmful if inhaled. Irritation: may cause irritation to the respiratory system.
symptoms:

| | |
|--------------------------------------|-----------------------------------|
| Symptoms/effects after inhalation: | May cause respiratory irritation. |
| Symptoms/effects after skin contact: | Irritation. |
| Symptoms/effects after eye contact: | Eye irritation. |

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

| | |
|---------------------------------|--|
| Firefighting instructions: | Evacuate area. Fight fire with normal precautions from a reasonable distance. Use water spray or fog for cooling exposed containers. |
| Protection during firefighting: | Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |
| Other information: | High temperature decomposition products are harmful by inhalation. |

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment: Collect spillage.
Methods for cleaning up: Take up liquid spill into absorbent material.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Wear personal protective equipment.
Handling temperature: > 12 °C
Hygiene measures: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

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8.3. Individual protection measures/Personal protective equipment

| Hand protection: | | | | |
|------------------|--|-------------------|----------------|-------------|
| Type | Material | Permeation | Thickness (mm) | Penetration |
| | Polyvinylalcohol (PVA), Viton® II, Vinyl, Nitrile rubber (NBR), butyl rubber, Neoprene rubber (HNBR), Natural rubber | 6 (> 480 minutes) | | |

| Eye protection: | | |
|-----------------|----------------------|-------------------|
| Type | Field of application | Characteristics |
| Safety glasses | | With side shields |

| Skin and body protection: | |
|--|--|
| Type | |
| Chemically resistant protective gloves | |

Personal protective equipment symbol(s):



Other information:

Do not breathe fume, gas, mist, spray, vapors, dust. Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|-----------------|--------------------------------------|
| Physical state: | Liquid |
| Color: | almost colourless to pale yellow |
| Odor: | aromatic |
| Odor threshold: | 1 ppm Literature data |
| pH: | Not applicable |
| Melting point: | > 12 °C |
| Freezing point: | < 12 °C |
| Boiling point: | 257 °C |
| Flash point: | 124 °C Cleveland Open Cup (ASTM D92) |

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| | |
|--|---|
| Relative evaporation rate (butyl acetate=1): | < 1 Literature data |
| Flammability: | 0.8 – 7 % Not applicable. |
| Vapor pressure: | 0.025 mm Hg at 25°C (77°F) Literature data |
| Relative vapor density at 20 °C: | > 1 (Air = 1) Literature data |
| Relative density: | 1.06 at 25°C (77°F) |
| Molecular mass: | ≈ 166 g/mol |
| Solubility: | Insoluble. Water: 0.0138 g/l at 15°C (60°F) Literature data Ether: completely soluble Acetone: completely soluble Organic solvent: completely soluble |
| Partition coefficient n-octanol/water (Log Pow): | No data available |
| Auto-ignition temperature: | 621 °C |
| Decomposition temperature: | 400 °C 0.2% mass |
| Viscosity, kinematic: | 2.48 mm ² /s at 40°C (104°F) |
| Viscosity, dynamic: | No data available |
| Explosion limits: | Lower explosion limit: 0.8 vol % Upper explosion limit: 7 vol % |
| Explosive properties: | Not classified as explosive according to EC criteria, but may present risks in the event of a fire. |
| Oxidizing properties: | Not classified. |

9.2. Other information

| | |
|-------------|-------------------|
| Volatility: | No data available |
|-------------|-------------------|

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

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10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|--|--|
| Acute toxicity (oral): | Not classified |
| Acute toxicity (dermal): | Not classified |
| Acute toxicity (inhalation): | Not classified |
| Skin corrosion/irritation: | Causes skin irritation. pH: Not applicable |
| Carcinogenicity: | Not classified |
| Aspiration hazard: | Not classified |
| Viscosity, kinematic: | 2.48 mm ² /s at 40°C (104°F) |
| Potential Adverse human health effects and symptoms: | Harmful if inhaled. Irritation: may cause irritation to the respiratory system. |
| Symptoms/effects after inhalation: | May cause respiratory irritation. |
| Symptoms/effects after skin contact: | Irritation. |
| Symptoms/effects after eye contact: | Eye irritation. |
| STOT-single exposure: | May cause respiratory irritation. |
| STOT-repeated exposure: | May cause damage to organs (respiratory system) through prolonged or repeated exposure (Inhalation). |
| Reproductive toxicity: | Not classified |

Diphenyl oxide (101-84-8)

| | |
|---------------------|---|
| LD50 oral rat: | 2830 mg/kg body weight Animal: rat, Animal sex: female, 95% CL: 2,49 - 3,21 |
| LD50 dermal rabbit: | > 7940 mg/kg body weight (24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s)) |
| ATE US (oral): | 2830 mg/kg body weight |

Biphenyl (92-52-4)

| | |
|------------------------|--|
| LD50 oral rat: | 2400 mg/kg body weight (Rat, Male / female, Experimental value, Oral) |
| LD50 dermal rabbit: | > 5010 mg/kg body weight (24 h, Rabbit, Male / female, Experimental value, Dermal) |
| LC50 Inhalation - Rat: | > 3.47 mg/l (1 h, Rat, Male / female, Experimental value, Inhalation, 14 day(s)) |

Serious eye damage/irritation: Causes serious eye irritation.
pH: Not applicable

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Biphenyl (92-52-4)

| | |
|-----------------------|-----------------------------------|
| STOT-single exposure: | May cause respiratory irritation. |
|-----------------------|-----------------------------------|

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| Diphenyl oxide (101-84-8) | |
|--------------------------------------|--|
| LOAEL (dermal, rat/rabbit, 90 days): | 100 mg/kg body weight Animal: rat |
| NOAEL (dermal, rat/rabbit, 90 days): | 1000 mg/kg body weight Animal: rat |
| STOT-repeated exposure: | May cause damage to organs through prolonged or repeated exposure. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: Very toxic to aquatic life with long lasting effects.

| Diphenyl oxide (101-84-8) | |
|----------------------------------|---|
| LC50 - Fish [1]: | 4.2 mg/l Test organisms (species): <i>Oncorhynchus mykiss</i> (previous name: <i>Salmo gairdneri</i>) |
| EC50 - Crustacea [1]: | 1.96 mg/l Test organisms (species): <i>Daphnia magna</i> |
| ErC50 algae: | 0.58 mg/l (Equivalent or similar to OECD 201, 72 h, <i>Pseudokirchneriella subcapitata</i> , Static system, Fresh water, Experimental value, GLP) |

| Biphenyl (92-52-4) | |
|---------------------------|---|
| LC50 - Fish [1]: | 3 mg/l (Equivalent or similar to OECD 203, 96 h, <i>Pimephales promelas</i> , Flow-through system, Fresh water, Experimental value) |
| LOEC (chronic): | 0.33 mg/l Test organisms (species): <i>Daphnia magna</i> Duration: '21 d' |
| NOEC (chronic): | 0.17 mg/l Test organisms (species): <i>Daphnia magna</i> Duration: '21 d' |
| NOEC chronic fish: | 0.229 mg/l Test organisms (species): <i>Oncorhynchus mykiss</i> (previous name: <i>Salmo gairdneri</i>) Duration: '87 d' |

12.2. Persistence and degradability

| Diphenyl oxide (101-84-8) | |
|----------------------------------|--|
| Persistence and degradability: | Readily biodegradable in water. |
| Biochemical oxygen demand (BOD): | 1.68 – 2 g O ₂ /g substance |
| Chemical oxygen demand (COD): | 2.19 – 2.5 g O ₂ /g substance |
| ThOD: | 2.63 g O ₂ /g substance |
| BOD (% of ThOD): | 0.72 |

| Biphenyl (92-52-4) | |
|----------------------------------|------------------------------------|
| Persistence and degradability: | Readily biodegradable in water. |
| Biochemical oxygen demand (BOD): | 1.08 g O ₂ /g substance |
| ThOD: | 3.01 g O ₂ /g substance |
| BOD (% of ThOD): | 0.36 |

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12.3. Bioaccumulative potential

| Diphenyl oxide (101-84-8) | |
|--|---|
| BCF - Fish [1]: | 155 – 200 (4 day(s), Oncorhynchus mykiss, Fresh water, Experimental value, Muscles) |
| Partition coefficient n-octanol/water (Log Pow): | 4.21 (Experimental value, 25 °C) |
| Bioaccumulative potential: | Low potential for bioaccumulation (BCF < 500). |

| Biphenyl (92-52-4) | |
|--|---|
| BCF - Fish [1]: | 1900 (Equivalent or similar to OECD 305, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value) |
| BCF - Other aquatic organisms [1]: | 540 (24 h, Chlorella sp., Fresh weight) |
| Partition coefficient n-octanol/water (Log Pow): | 4.008 (Experimental value, Equivalent or similar to OECD 123, 25 °C) |
| Bioaccumulative potential: | Potential for bioaccumulation ($4 \leq \text{Log Kow} \leq 5$). |

12.4. Mobility in soil

| Diphenyl oxide (101-84-8) | |
|---|-------------------------------------|
| Surface tension: | 39 mN/m (25 °C) |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc): | 3.3 (log Koc, Experimental value) |
| Ecology - soil: | Low potential for mobility in soil. |

| Biphenyl (92-52-4) | |
|---------------------------|-------------------------------------|
| Ecology - soil: | Low potential for mobility in soil. |

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number

| | |
|----------------|----------------|
| DOT NA No: | UN3082 |
| UN-No. (TDG): | Not applicable |
| UN-No. (IMDG): | 3082 |
| UN-No. (IATA): | 3082 |

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14.2. UN proper shipping name

| | |
|--|--|
| Proper Shipping Name (DOT): | Environmentally hazardous substances, liquid, n.o.s. (Biphenyl and Diphenyl Oxide Mixture) |
| Proper Shipping Name (TDG): | Not applicable |
| Proper Shipping Name (IMDG): | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (diphenyl ; diphenyl oxide) |
| Proper Shipping Name (IATA): | Environmentally hazardous substance, liquid, n.o.s. (diphenyl ; diphenyl oxide) |
| Transport document description (DOT): | UN3082 Environmentally hazardous substances, liquid, n.o.s. (Biphenyl and Diphenyl Oxide Mixture), 9, III |
| Transport document description (IMDG): | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (diphenyl ; diphenyl oxide), 9, III (124°C c.c.) |
| Transport document description (IATA): | UN 3082 Environmentally hazardous substance, liquid, n.o.s. (diphenyl ; diphenyl oxide), 9, III |

14.3. Transport hazard class(es)

DOT

| | |
|-----------------------------------|---|
| Transport hazard class(es) (DOT): | 9 |
| Hazard labels (DOT): | 9 |

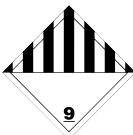


TDG

| | |
|-----------------------------------|----------------|
| Transport hazard class(es) (TDG): | Not applicable |
|-----------------------------------|----------------|

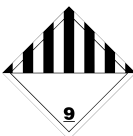
IMDG

| | |
|------------------------------------|---|
| Transport hazard class(es) (IMDG): | 9 |
| Hazard labels (IMDG): | 9 |



IATA

| | |
|------------------------------------|---|
| Transport hazard class(es) (IATA): | 9 |
| Hazard labels (IATA): | 9 |



14.4. Packing group

| | |
|-----------------------|----------------|
| Packing group (DOT): | III |
| Packing group (TDG): | Not applicable |
| Packing group (IMDG): | III |

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Packing group (IATA): III

14.5. Environmental hazards

Other information: No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT):

UN3082

DOT Special Provisions (49 CFR 172.102):

8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.

146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.

173 - An appropriate generic entry may be used for this material.

335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.

IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

DOT Packaging Exceptions (49 CFR 173.xxx): 155

DOT Packaging Non Bulk (49 CFR 173.xxx): 203

DOT Packaging Bulk (49 CFR 173.xxx): 241

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): No limit

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): No limit

DOT Vessel Stowage Location: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

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TDG

Emergency Response Guide (ERG) Number: 171

IMDG

Special provision (IMDG): 274, 335, 969
Limited quantities (IMDG): 5 L
Excepted quantities (IMDG): E1
Packing instructions (IMDG): LP01, P001
Packing provisions (IMDG): PP1
IBC packing instructions (IMDG): IBC03
Tank instructions (IMDG): T4
Tank special provisions (IMDG): TP1, TP29
EmS-No. (Fire): F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage): S-F - SPILLAGE SCHEDULE Foxtrot - WATER-SOLUBLE MARINE POLLUTANTS
Stowage category (IMDG): A

IATA

PCA Excepted quantities (IATA): E1
PCA Limited quantities (IATA): Y964
PCA limited quantity max net quantity (IATA): 30kgG
PCA packing instructions (IATA): 964
PCA max net quantity (IATA): 450L
CAO packing instructions (IATA): 964
CAO max net quantity (IATA): 450L
Special provision (IATA): A97, A158, A197, A215
ERG code (IATA): 9L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name | CAS-No. | Listing | Commercial status | Flags |
|----------------|----------|---------|-------------------|-------|
| Diphenyl oxide | 101-84-8 | Present | Active | |
| Biphenyl | 92-52-4 | Present | Active | |

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| | | |
|----------|-----------------|--------------|
| Biphenyl | CAS-No. 92-52-4 | 26.5 – 27.5% |
|----------|-----------------|--------------|

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| | |
|--|--------|
| Biphenyl (92-52-4) | |
| Listed on EPA Hazardous Air Pollutant (HAPS) | |
| CERCLA RQ: | 100 lb |

15.2. International regulations

CANADA

| | |
|---|--|
| Diphenyl oxide (101-84-8) | |
| Listed on the Canadian DSL (Domestic Substances List) | |

| | |
|---|--|
| Biphenyl (92-52-4) | |
| Listed on the Canadian DSL (Domestic Substances List) | |

EU-Regulations

No additional information available

National regulations

| | |
|--|--|
| Diphenyl oxide (101-84-8) | |
| Listed on INSQ (Mexican National Inventory of Chemical Substances) | |

| | |
|--|--|
| Biphenyl (92-52-4) | |
| Listed on INSQ (Mexican National Inventory of Chemical Substances) | |

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

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Revision date: 08/05/2022

| Full text of H-phrases | |
|------------------------|---|
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |

| Abbreviations and acronyms | |
|----------------------------|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |

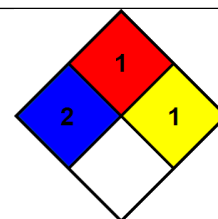
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| Abbreviations and acronyms | |
|----------------------------|--|
| BCF | Bioconcentration factor |
| BLV | Biological limit value |
| BOD | Biochemical oxygen demand (BOD) |
| COD | Chemical oxygen demand (COD) |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EC-No. | European Community number |
| EC50 | Median effective concentration |
| EN | European Standard |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| ThOD | Theoretical oxygen demand (ThOD) |
| TLM | Median Tolerance Limit |
| VOC | Volatile Organic Compounds |
| CAS-No. | Chemical Abstract Service number |
| N.O.S. | Not Otherwise Specified |
| vPvB | Very Persistent and Very Bioaccumulative |
| ED | Endocrine disrupting properties |

NFPA health hazard 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.
NFPA fire hazard 1 - Materials that must be preheated before ignition can occur.
NFPA reactivity 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.



XCELTHERM MK-1

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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|---------------|--|
| Hazard Rating | |
| Health | 2 Moderate Hazard - Temporary or minor injury may occur |
| Flammability | 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB) |
| Physical | 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors. |

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