



XCELTHERM® XT

Safety Data Sheet

Issue date: 12/10/1999

Revision date: 11/16/2023

Supersedes: 6/20/2023

Version: 10.0

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

SECTION 1: Identification

1.1. Identification

Trade name XCELTHERM® XT

1.2. Recommended use and restrictions on use

Use of the substance/mixture: High efficiency heating and cooling fluid with -70°F to 650°F range (-55°C to 345°C); liquid or vapor phase, 527°F (275°C) initial boiling point. Recommended for natural gas processing, solvent recovery units, chemical processing and many other applications. Especially useful when a high heat transfer coefficient is desired across a broad temperature range.

Use of the substance/mixture: 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

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

Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Skin sensitization, Category 1	H317	May cause an allergic skin reaction
Specific target organ toxicity (repeated exposure) Category 1	H372	Causes damage to organs (Skin) through prolonged or repeated exposure (Dermal)
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US):



Signal word (GHS US):

Danger

Hazard statements (GHS US):

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H332 - Harmful if inhaled

H372 - Causes damage to organs (Skin) through prolonged or repeated exposure (Dermal)

Precautionary statements (GHS US):

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

P261 - Avoid breathing fume, gas, mist, spray, vapors.

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

P270 - Do not eat, drink or smoke when using this product.

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

P272 - Contaminated work clothing must not be allowed out of the workplace.

P280 - Wear eye protection, protective gloves, protective clothing.

P301+P310 - If swallowed: Immediately call a POISON CENTER, a doctor.

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

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

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

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

P321 - Specific treatment (see supplemental first aid instruction on this label).

P331 - Do NOT induce vomiting.

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

P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

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

P363 - Wash contaminated clothing before reuse.

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

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients**3.1. Substances**

Name XCELTHERM® XT

Name	Product identifier	%	GHS US classification
(phenylethyl)benzene	CAS-No.: 38888-98-1	84 – 100	Acute Tox. 4 (Inhalation:dust,mist), H332 Asp. Tox. 1, H304 Aquatic Chronic 1, H410
Benzene, ethylenated, residues	CAS-No.: 68987-42-8	0.1 – 10	Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 2, H401 Aquatic Chronic 1, H410
Benzene, ethylenated, by-products from	CAS-No.: 68608-82-2	0.1 – 1	STOT RE 1, H372

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

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Call a physician immediately.

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 or rash occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse eyes with water as a precaution.

First-aid measures after ingestion: Do not induce vomiting. Call a physician immediately.

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

Symptoms/effects after skin contact: Irritation. May cause an allergic skin reaction.

Symptoms/effects after ingestion: Risk of lung edema.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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

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.

Hygiene measures: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. 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 cool.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

XCELTHERM® XT
No additional information available

(phenylethyl)benzene (38888-98-1)
No additional information available

Benzene, ethylenated, residues (68987-42-8)
No additional information available

Benzene, ethylenated, by-products from (68608-82-2)
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.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Liquid.
Color:	Colorless to light yellow
Odor:	Aromatic odor
Odor threshold:	No data available
pH:	No data available
Melting point:	Not applicable
Freezing point:	≤ -70 °C (ASTM D97 Pour point)
Boiling point:	272 °C (10% Fraction)

Flash point:	132 °C (ASTM D92 Cleveland Open Cup Method)
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	0.002 mm Hg at 25°C (77°F)
Relative vapor density at 20°C:	6.5 (Air = 1)
Relative density:	0.95 – 1.05 at 15.6°C (Water = 1)
Solubility:	insoluble in water.
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	428 °C
Decomposition temperature:	No data available
Viscosity, kinematic:	2.6 mm ² /s at 40°C (104°F)
Viscosity, dynamic:	No data available
Explosion limits:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

9.2. Other information

No additional information available

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

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral):	Not classified
Acute toxicity (dermal):	Not classified
Acute toxicity (inhalation):	Harmful if inhaled.
Skin corrosion/irritation:	Causes skin irritation.
Carcinogenicity:	Not classified
Aspiration hazard:	May be fatal if swallowed and enters airways.
Viscosity, kinematic:	2.6 mm ² /s at 40°C (104°F)
Symptoms/effects after skin contact:	Irritation. May cause an allergic skin reaction.
Symptoms/effects after ingestion:	Risk of lung edema.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Causes damage to organs (Skin) through prolonged or repeated exposure (Dermal).
Reproductive toxicity:	Not classified

XCELTHERM® XT	
ATE US (dust, mist):	1.5 mg/l/4h

(phenylethyl)benzene (38888-98-1)	
LD50 oral rat:	2531 mg/kg body weight (OECD 401 method)
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	1 – 5 mg/l/4h (OECD 403 method)
ATE US (oral):	2531 mg/kg body weight
ATE US (vapors):	1 mg/l/4h
ATE US (dust, mist):	1 mg/l/4h

Benzene, ethylenated, residues (68987-42-8)	
LD50 oral rat:	> 2000 mg/kg body weight Test method EU B.1 (tris)
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
LD50 dermal rabbit:	> 2000 mg/kg body weight (EPA OTS 798.1100)

Benzene, ethylenated, by-products from (68608-82-2)	
LD50 oral rat:	> 5000 mg/kg body weight (EPA OPP 81-1)

(phenylethyl)benzene (38888-98-1)	
Serious eye damage/irritation:	Not classified

Benzene, ethylenated, residues (68987-42-8)	
Serious eye damage/irritation:	Not classified

Benzene, ethylenated, by-products from (68608-82-2)	
Serious eye damage/irritation:	Not classified

(phenylethyl)benzene (38888-98-1)	
Respiratory or skin sensitization:	May cause an allergic skin reaction.
Benzene, ethylenated, residues (68987-42-8)	
Respiratory or skin sensitization:	May cause an allergic skin reaction.
Benzene, ethylenated, by-products from (68608-82-2)	
Respiratory or skin sensitization:	May cause an allergic skin reaction.
(phenylethyl)benzene (38888-98-1)	
Germ cell mutagenicity:	Not classified
Benzene, ethylenated, residues (68987-42-8)	
Germ cell mutagenicity:	Not classified
Benzene, ethylenated, by-products from (68608-82-2)	
Germ cell mutagenicity:	Not classified
Benzene, ethylenated, by-products from (68608-82-2)	
NOAEL (animal/female, F0/P):	20 mg/kg body weight (OECD 422 method)
Benzene, ethylenated, residues (68987-42-8)	
LOAEL (dermal, rat/rabbit, 90 days):	50 mg/kg body weight (OECD 410 method)
LOAEC (inhalation, rat, vapor, 90 days):	4.71 mg/l Air Test method EU B.29
NOAEC (inhalation, rat, vapor, 90 days):	2.355 mg/l Air Test method EU B.29
STOT-repeated exposure:	May cause damage to organs through prolonged or repeated exposure.
Benzene, ethylenated, by-products from (68608-82-2)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days):	0.02 mg/l Air
NOAEL (oral, rat, 90 days):	20 mg/kg body weight (OECD 422 method)
NOAEC (inhalation, rat, dust/mist/fume, 90 days):	0.1 mg/l Air
STOT-repeated exposure:	Causes damage to organs through prolonged or repeated exposure.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general:

The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

(phenylethyl)benzene (38888-98-1)	
LC50 - Fish [1]:	0.31 mg/l (OECD 203 method)

(phenylethyl)benzene (38888-98-1)	
EC50 - Crustacea [1]:	1.2 mg/l Species: Daphnia magna (Water flea)(OECD 202 method)
EC50 - Crustacea [2]:	1.4 mg/l Species: Daphnia magna (Water flea)
ErC50 algae:	0.56 mg/l (OECD 201 method)

Benzene, ethylenated, residues (68987-42-8)	
EC50 - Crustacea [1]:	1.2 mg/l Species: Daphnia magna (Water flea)

Benzene, ethylenated, by-products from (68608-82-2)	
LC50 - Fish [1]:	1.65 mg/l Species: Pimephales promelas
EC50 - Crustacea [1]:	300 µg/l Species: Daphnia magna (Water flea)

12.2. Persistence and degradability

(phenylethyl)benzene (38888-98-1)	
Persistence and degradability:	Not readily biodegradable in water.

12.3. Bioaccumulative potential

(phenylethyl)benzene (38888-98-1)	
BCF - Fish [1]:	620 – 760 l/kg (OECD 305 method)
Partition coefficient n-octanol/water (Log Pow):	4.48 (OECD 117 method)
Bioaccumulative potential:	Potential for bioaccumulation ($4 \leq \text{Log Kow} \leq 5$).

12.4. Mobility in soil

(phenylethyl)benzene (38888-98-1)	
Surface tension:	69.92 mN/m (OECD 115 method)
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	3.64 (OECD 211 method)
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 DOT / TDG / IMDG / IATA / ICAO / ADN / RID / ADG

14.1. UN number

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

14.2. UN proper shipping name

Proper Shipping Name (DOT):	Not applicable
Proper Shipping Name (TDG):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS (phenylethyl)benzene)
Proper Shipping Name (IMDG):	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS (phenylethyl)benzene)
Proper Shipping Name (IATA):	Environmentally hazardous substance, liquid, n.o.s. (CONTAINS (phenylethyl)benzene)
Transport document description (TDG):	UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS (phenylethyl)benzene), 9, III
Transport document description (IMDG):	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS (phenylethyl)benzene), 9, III (132°C c.c.)
Transport document description (IATA):	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (CONTAINS (phenylethyl)benzene), 9, III

14.3. Transport hazard class(es)**DOT**

Transport hazard class(es) (DOT):	Not applicable
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TDG

Transport hazard class(es) (TDG):	9
Hazard labels (TDG)::	9

**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):	Not applicable
Packing group (TDG):	III
Packing group (IMDG):	III
Packing group (IATA):	III

14.5. Environmental hazards

Other information: No supplementary information available.

14.6. Special precautions for user**DOT**

No data available

TDG

UN-No.: UN3082

TDG Special Provisions:

16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks.

2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the "Food and Drugs Act", 99 - (1) Mixtures of solids that are not dangerous goods and liquids or solids that are UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, may be handled, offered for transport or transported as UN3077 if there is no visible liquid when the dangerous goods are loaded into a means containment and during transport. (2) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there

will be no accidental release of the dangerous goods that could endanger public safety. SOR/2014-306 UN3077, UN3082 SOR/2014-306

Explosive Limit and Limited Quantity Index: 5 L
 Excepted quantities (TDG): E1

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
(phenylethyl)benzene	38888-98-1	Present	Active	
Benzene, ethylenated, residues	68987-42-8	Present	Active	
Benzene, ethylenated, by-products from	68608-82-2	Present	Active	

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

(phenylethyl)benzene (38888-98-1)

Listed on the Canadian DSL (Domestic Substances List)

Benzene, ethylenated, residues (68987-42-8)

Listed on the Canadian DSL (Domestic Substances List)

Benzene, ethylenated, by-products from (68608-82-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

No additional information available

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

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

Revision date: 11/16/2023

Full text of H-phrases	
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H332	Harmful if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

XCELTHERM® XT

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NFPA health hazard

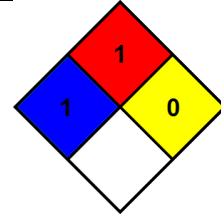
1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard

1 - Materials that must be preheated before ignition can occur.

NFPA reactivity

0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health 1 Slight Hazard - Irritation or minor reversible injury possible

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 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any particular process or for any particular purpose. Such information stated is to the best of Radco's knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made to its accuracy, reliability, or completeness, purchasers, users and distributors are not relying on any promise, representation, or recommendation made by Radco, and Radco does not accept liability for any loss or damage that may occur from the use of this information. Final determination of suitability of any material is the sole responsibility of the user. All material should be used with caution to guard against unknown hazards. Although certain hazards are described herein, Radco does not guarantee that these are the only hazards that exist.