XCELTHERM® TPL

Safety Data Sheet

Issue date: 5/15/2015 Revision date: 11/11/2024 Supersedes: 2/13/2024 Version: 14.0

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

SECTION 1: Identification

1.1. Identification

Trade name XCELTHERM® TPL

1.2. Recommended use and restrictions on use

Use of the substance/mixture: Direct replacement for Hydrogenated Terphenyl based heat transfer fluids for low pressure systems operating up to 650°F (345°C). Recommended for oil and gas processing, chemical manufacturing, refining operations, low pressure thermal fluid systems, bio-products, polymer and resin production and many other applications.

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
Hazardous to the aquatic environment – Acute Hazard Category 1	H400	Very toxic to aquatic life
Hazardous to the aquatic environment – Chronic Hazard Category 2	H411	Toxic to aquatic life with long lasting effects

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):	Warning
Hazard statements (GHS US):	H332 - Harmful if inhaled
	H400 - Very toxic to aquatic life
	H411 - Toxic to aquatic life with long lasting effects
Precautionary statements (GHS US):	P261 - Avoid breathing fume, mist, spray, vapors.
	P271 - Use only outdoors or in a well-ventilated area.
	P273 - Avoid release to the environment.
	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.
	P391 - Collect spillage.
	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

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
terphenyl, hydrogenated	CAS-No.: 61788-32-7	> 70	Acute Tox. 4 (Inhalation:dust,mist), H332 Aquatic Chronic 2, H411
Terphenyl	CAS-No.: 26140-60-3	< 10	Acute Tox. 4 (Inhalation:dust,mist), H332 Aquatic Acute 1, H400

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

Symptoms/effects after inhalation:	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact:	None under normal conditions.
Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	None under normal conditions.

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.
Unsuitable extinguishing media:	Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard:	No fire hazard.
Explosion hazard:	No direct explosion hazard.
Hazardous decomposition products in case of fire:	Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions:	Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
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

General measures:	Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

6.1.1. For non-emergency personnel

Protective equipment:	Wear recommended personal protective equipment.
Emergency procedures:	Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapors/spray.

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".
Emergency procedures:	Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment:	Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.
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

Additional hazards when processed:	Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling:	Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapors/spray.
Hygiene measures:	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

Technical measures:	Keep in a cool, well-ventilated place away from heat.
Storage conditions:	Keep cool. Protect from sunlight.
Packaging materials:	Store always product in container of same material as original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

XCELTHERM® TPL (61788-32-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Hydrogenated terphenyls (nonirradiated)
ACGIH OEL TWA	0.5 ppm
Remark (ACGIH)	TLV® Basis: Liver dam
Regulatory reference	ACGIH 2024

terphenyl, hydrogenated (61788-32-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Hydrogenated terphenyls (nonirradiated)
ACGIH OEL TWA	0.5 ppm
Remark (ACGIH)	TLV® Basis: Liver dam
Regulatory reference	ACGIH 2024

Terphenyl (26140-60-3)
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

Personal protective equipment:

Wear recommended 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:	Yellow liquid.
Color:	Light yellow
Odor:	Aromatic odor
Odor threshold:	No data available
pH:	No data available
Melting point:	No data available
Freezing point:	≤ -12 °C (Pour point)
Boiling point:	359 °C (Normal Boiling Point, 10% fraction)
Flash point:	≥ 184 °C (ASTM D92 Cleveland Open Cup Method)
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	Not applicable.
Vapor pressure:	0.0015 mm Hg at 20°C
Relative vapor density at 20°C:	No data available
Relative density:	1.012 (1 – 1.2) at 15.6°C (Water = 1)
Density:	1007 kg/m³
Solubility:	Water: 0.06 g/l at 20°C

Partition coefficient n-octanol/water (Log Pow):	3.16
Auto-ignition temperature:	374 °C
Decomposition temperature:	No data available
Viscosity, kinematic:	30.5 mm²/s at 40°C
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):	Inhalation:dust,mist: Harmful if inhaled.
Skin corrosion/irritation:	Not classified
Carcinogenicity:	Not classified
Aspiration hazard:	Not classified
Viscosity, kinematic:	30.5 mm²/s at 40°C
Symptoms/effects after inhalation:	Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.
Symptoms/effects after skin contact:	None under normal conditions.

Symptoms/effects after eye contact:	None under normal conditions.
Symptoms/effects after ingestion:	None under normal conditions.
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Not classified

XCELTHERM® TPL (61788-32-7)	
ATE US (dust, mist):	2.028 mg/l/4h

terphenyl, hydrogenated (61788-32-7)	
LD50 oral rat:	> 10000 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 15 day(s))
LD50 dermal rabbit:	> 2000 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat:	> 4.7 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 14 day(s))
ATE US (dust, mist):	1.5 mg/l/4h

Terphenyl (26140-60-3)	
LD50 dermal rabbit:	> 5000 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	3.8 mg/l/4h (OECD 403 method)
ATE US (vapors):	3.8 mg/l/4h
ATE US (dust, mist):	3.8 mg/l/4h

terphenyl, hydrogenated (61788-32-7)	
Serious eye damage/irritation:	Not classified

Terphenyl (26140-60-3)	
Serious eye damage/irritation:	Not classified

terphenyl, hydrogenated (61788-32-7)	
Respiratory or skin sensitization:	Not classified

Terphenyl (26140-60-3)	
Respiratory or skin sensitization:	Not classified

terphenyl, hydrogenated (61788-32-7)	
Germ cell mutagenicity:	Not classified

Terphenyl (26140-60-3)	
Germ cell mutagenicity:	Not classified

terphenyl, hydrogenated (61788-32-7)	
LOAEL (oral,rat,90 days):	120 mg/kg body weight (OECD 408 method)
NOAEL (dermal,rat/rabbit,90 days):	2000 mg/kg body weight rabbit

SECTION 12: Ecological information

12.1. Toxicity

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

Ecology - air: Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Photooxidation in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

XCELTHERM® TPL (61788-32-7)	
LC50 - Fish [1]:	3.1 mg/l (OECD 203 method)
EC50 - Crustacea [1]:	1.34 mg/l (OECD 202 method)
ErC50 algae:	100 mg/l (OECD 201 method)

terphenyl, hydrogenated (61788-32-7)	
LC50 - Fish [1]:	3.1 mg/l (OECD 203 method)
EC50 - Crustacea [1]:	1.34 mg/l (OECD 202 method)
ErC50 algae:	100 mg/l (OECD 201 method)

Terphenyl (26140-60-3)	
LC50 - Fish [1]:	33 mg/l Species: Oncorhynchus mykiss (Rainbow trout)
EC50 - Crustacea [1]:	22 µg/l Species: Daphnia magna (Water flea)
LC50 - Fish [2]:	27 mg/l Species: Oncorhynchus mykiss (Rainbow trout)

12.2. Persistence and degradability

terphenyl, hydrogenated (61788-32-7)	
Persistence and degradability:	Not readily biodegradable in the soil. Not readily biodegradable in water.

12.3. Bioaccumulative potential

XCELTHERM® TPL (61788-32-7)	
BCF - Fish [1]:	700 – 2000 Lepomis macrochirus (Bluegill) (Literature data)
Partition coefficient n-octanol/water (Log Pow):	3.16

terphenyl, hydrogenated (61788-32-7)	
BCF - Fish [1]:	770 – 5200 (42 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)

terphenyl, hydrogenated (61788-32-7)	
Partition coefficient n-octanol/water (Log Pow):	> 6.5 (OECD 117 method)
Bioaccumulative potential:	High potential for bioaccumulation (BCF > 5000).

12.4. Mobility in soil

terphenyl, hydrogenated (61788-32-7)	
Surface tension:	No data available
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	5.5 (OECD 121 method)
Ecology - soil:	Adsorbs into the soil.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation: Disposal must be done according to official regulations.
Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations: Disposal must be done according to official regulations.
Additional information: Do not re-use empty containers.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA / ICAO / ADN / RID / ADG

DOT	TDG	IMDG	IATA
14.1. UN number			
Not applicable	UN3082	3082	3082
14.2. Proper Shipping Name			
Not applicable	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Terphenyl, Hydrogenated)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	Environmentally hazardous substance, liquid, n.o.s.
Transport document description			
Not applicable	UN3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Terphenyl, Hydrogenated), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, MARINE POLLUTANT (184°C c.c.)	UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III

DOT	TDG	IMDG	IATA
14.3. Transport hazard class(es)			
Not applicable	9	9	9
			
14.4. Packing group			
Not applicable	III	III	III
14.5. Environmental hazards			
Not applicable	Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes
No supplementary information available			

14.6. Special precautions for user

DOT
No data available

TDG
UN-No.: UN3082
Explosive Limit and Limited Quantity Index: 5 L
Excepted quantities (TDG): E1
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

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

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

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

terphenyl, hydrogenated (61788-32-7)

Listed on the Canadian DSL (Domestic Substances List)

Terphenyl (26140-60-3)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Terphenyl (26140-60-3)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

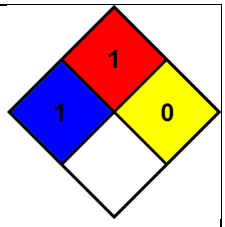
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date: 11/11/2024

Full text of hazard classes and H-statements	
H332	Harmful if inhaled
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

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.

Indication of changes:			
Section	**Changed item**	**Change**	**Comments**
14	DOT Regulatory status	Modified	Bulk trasport status changed to not regulated by DOT.

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.