



XCELTHERM® TPL HEAT TRANSFER FLUID

SAFETY DATA SHEET

Issue Date: 15 May 2015

Revision Date: 8 October 2018

Revision Number: 7.0

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name: XCELTHERM® TPL HEAT TRANSFER FLUID

ISO 9001:2015 Certification Number: C2018-00035

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

Synthetic heat transfer fluid for low pressure systems operating up to 345°C (650°F).

1.3 Details of the supplier of the safety data sheet

Headquarters and Manufacturing Facility

Radco Industries, Inc.

700 Kingsland Drive

Batavia, IL 60510

CAGE Code 6ZS16

Customer information number: 1-630-232-7966

1.4 Emergency Telephone Number

Advisory Office in case of poisoning: Chemtrec

Chemtrec (North America): 1-800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

Aquatic toxicity, acute hazards Category 1

Aquatic toxicity, chronic hazards Category 1

Classification of mixture is in accordance with United Nations (UN) Globally Harmonized System of Classification and Labelling of Chemicals (GHS), sixth revised edition (2015), and United States Standard 29 CFR 1910 Occupational Safety and Health Standards.

See SECTION 16 for toxicity category definitions.

2.2 Label elements



Hazard pictograms: Environmental Hazard

Signal word: Warning

Hazard statements

H315:	Causes skin irritation.
H410:	Very toxic to aquatic life with long lasting effects.



Precaution statements

P101:	If medical advice is needed, have product container or label at hand.
P202:	Do not handle until all safety precautions have been read and understood.
P270:	Do not eat, drink or smoke when using this product.
P273:	Avoid release to the environment.
P280:	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P331 + P315:	IF SWALLOWED: Do NOT induce vomiting. Rinse mouth. Get immediate medical advice/attention.
P303 + P353:	IF ON SKIN (or hair): Rinse skin with water/shower.
P304 + P340 + P342 + P315:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, get immediate medical advice/attention.
P305 + P351 + P338 + P310:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P306 + P363:	IF ON CLOTHING: Wash contaminated clothing before reuse.
P404:	Store in a closed container.
P501:	Dispose of contents/container to in accordance with local/regional/national/international regulation.

2.3 Other hazards

PBT and vPvB

No chemical assessment has been conducted on one or more of the product components, and therefore, PBT and vPvB may not be confirmed.

NFPA Hazard ID

Health: 1
Flammability: 1
Reactivity: 0

HMIS Hazard ID

Health: 1
Flammability: 1
Reactivity: 0

SECTION 3. Composition/information on ingredients

3.1 Substances

Terphenyl, hydrogenated

Index number: Not available
CAS number: 61788-32-7
EC number: 262-967-7
REACH number: 01-2119488183-33
Synonyms: 1-cyclohex-2-en-1-yl-4-cyclohex-3-en-1-ylbenzene

Polyphenyls, quater- and higher, partially hydrogenated

Index number: Not available
CAS number: 68956-74-1
EC number: 273-316-1
REACH number: Not available
Synonyms: Partially hydrogenated quarter phenyls and higher polyphenyls

Terphenyl

Index number: Not available
CAS number: 26140-60-3
EC number: 247-477-3
REACH number: 01-2119488220-43
Synonyms: Terphenyl, dehydrogenated



3.2 Mixtures

Component	CAS Number	EC Number	%Content	Classification of Labeling	M-Factor
Terphenyl, hydrogenated	61788-32-7	262-967-7	>70%	Aquatic chronic 1 – H413	10
Polyphenyls, quater- and higher, partially hydrogenated	68956-74-1	273-316-1	<20%	Not classified	0
Terphenyl	26140-60-3	247-477-3	<10%	Aquatic acute 1 – H400 Aquatic chronic 1 – H410	10 10

M-Factor determinations are in accordance with UN GHS, sixth revised edition (2015).

See SECTION 16 for full text of the toxicity categories and H-statements listed in this section.

Indicative occupational exposure limit values

Component	Specific Concentration limits
Polyphenyls, quater- and higher, partially hydrogenated	None established
Terphenyl	See SECTION 8 for exposure limits.
Terphenyl, hydrogenated	See SECTION 8 for exposure limits.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye contact

Upon accidental eye exposure, wash the eyes promptly with water for at least 20 minutes. If wearing contact lenses, remove them if safe to do so, and continue washing. Get medical attention immediately.

Ingestion

If swallowed, do not induce vomiting. Rinse mouth out with water. Get medical attention immediately.

Inhalation

If respiratory irritation, dizziness, or nausea occurs, move to fresh air and keep at rest in a comfortable position for breathing. If symptoms persist or unconsciousness occurs, seek immediate medical assistance.

Skin contact

Wash skin thoroughly with mild soap and plenty of water for at least 20 minutes. If irritation develops, seek medical advice.

Note to physicians

Treat symptomatically.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms

Eye exposure symptoms

Direct eye exposure may lead to redness and lacrimation (crying tears).

Ingestion symptoms

Small amounts may cause nausea. Large amounts may lead to abdominal obstruction (cramps), constipation or diarrhea.

Inhalation symptoms

May cause irritation of the nose, throat, and lungs.

Skin exposure symptoms

Short-term exposure is not expected to cause irritation.

Delayed symptoms

Eye exposure symptoms

None expected, however seek medical attention if irritation persists.



Ingestion symptoms

None expected, however seek medical attention if abdominal obstruction, constipation or diarrhea persists.

Inhalation symptoms

None expected, however seek medical attention if respiratory irritation persists.

Skin exposure symptoms

Repeated exposure may lead to irritation. If rash develops, seek medical attention.

4.3 Indication of any immediate medical attention and special treatment needed

Suggestions for clinical testing and medical monitoring for delayed effects are not known. Use first aid when applicable, and seek guidance from a medical physician for specific treatment.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media includes alcohol-resistant foam, carbon dioxide, dry chemical or water fog.

5.2 Special hazards arising from the substance or mixture

No data is available.

5.3 Advice for firefighters

Fire-Fighting Equipment

Firefighter should wear normal protective equipment (full bunker gear) and positive-pressure contained breathing apparatus. Water can be used to cool fire-exposed containers, to protect personnel and to disperse vapors and spills. Water runoff can cause environmental damage. Dike and collect water used to fight fires.

Special Fire-Fighting Procedures

Use water spray to cool fire-exposed containers and structures. If a rail or tank truck is involved in a fire, isolate for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from the area and let the fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear personal protective equipment (PPE). Eliminate sources of ignition, if safe to do so. Avoid breathing vapors or mist. Evacuate to designated safe areas.

For emergency responders

If possible, move individual to safe area, and treat symptomatically.

6.2 Environmental precautions

Contain spill, if safe to do so. Prevent from entering sewers or drains.

6.3 Methods and material for containment and cleaning up

Use oil absorbent material to soak up product on the ground. Should this product enter sewers or drains, it should be pumped out into an open vessel. The recovered material should be discarded as hazardous waste.

6.4 Reference to other sections

If appropriate, refer to SECTION 8 and SECTION 13 for additional information.

SECTION 7. HANDLING AND STORAGE



7.1 Precautions for safe handling

Use personal protective equipment (PPE) when handling this product. Smoking, eating and drinking should be prohibited in the application area.

7.2 Conditions for safe storage, including any incompatibilities

Do not store in open or unlabeled containers. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

For use in low pressure heat transfer systems operating up to 345°C (650°F).

SECTION 8.

8.1 Control parameters

Component	Form	Exposure Limits
Polyphenyls, quater- and higher, partially hydrogenated		None established
Terphenyl	Mist, vapor, or fumes	ACGIH (United States, 1998) TLV = 0.5 ppm (5 mg/m ³) ACGIH (United States, 1/2010) TWA = 5 mg/m ³ OSHA Z-1 (United States, 2/2006) TWA = 1 ppm (9 mg/m ³)
Terphenyl, hydrogenated	Mist, vapor, or fumes	ACGIH (United States, 1998) TLV = 0.5 ppm (5 mg/m ³) ACGIH (United States, 1/2010) TWA = 0.5 ppm OSHA Z-1 (United States, 2/2006) TWA = 1 ppm (9 mg/m ³)

Biological exposure limits

None established for any of the disclosed components.

8.2 Exposure controls

Appropriate engineering controls

Practice general industrial hygiene. Do not eat, drink or smoke near product. Wash hands after handling. Remove clothing and wash separate from other laundry.

Personal protective equipment (PPE)

Eye/face protection

Safety glasses, chemical safety goggles and/or face shields are recommended when handling this product.

Skin protection

For extended handling, wear oil resistant gloves such as neoprene. Nitrile gloves may be appropriate for short handling periods use. Contact a government approved or accredited manufacturer for specific recommendations.

Other protections

Wear protective clothing ensuring minimal skin exposure. Protective clothing should be chemically impervious to oils and other solvents.

Respiratory protection

Use with adequate ventilation. Avoid breathing vapor. If heated and ventilation is inadequate, use NIOSH certified respirator, which will protect against organic vapor.

Environmental exposure controls

Do not allow product to reach ground water, water course, or sewage systems. Stop leaks, if safe to do so. Contain spills with absorbent or adsorbent materials.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Pale yellow
Odor:	Aromatic



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Odor threshold:	Not determined
Auto-ignition temperature:	374°C (705°F)
Decomposition temperature:	Not available
Evaporation Rate:	Not available
Explosive properties:	Not determined
Flammability (solid, gas):	Non-flammable
Lower flammability limit:	Not available
Upper flammability limit:	Not available
Flash point Cleveland Open Cup (ASTM D92):	> 192°C (378°F)
Flash point Pinsky-Martens (ASTM D93):	150°C (302°F)
Initial boiling point and boiling range:	> 342°C (648°F), 10% fraction
Melting point/freezing point:	< -11°F (-24 °C)
Oxidizing properties:	Not determined
Partition coefficient (n-octanol/water), Log P _{ow} :	3.16 x 10 ⁶
pH:	Not applicable
Relative density (ASTM D1298) 15.6°C/15.6°C (60°F/60°F):	1.00 – 1.10
Solubility in water:	Insoluble
Vapor density:	Not determined
Vapor pressure:	>0.00135 mmHg at 68°F (20°C)
Viscosity (ASTM D445):	133 cSt (mm/s ²) at 68°F (20°C) 29.6 cSt (mm/s ²) at 104°F (40°C) 3.8 cSt (mm/s ²) at 212°F (100°C)

9.2 Other information

No further information is available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

Non-reactive in its original state.

10.2 Chemical stability

Stable in its original state.

10.3 Possibility of hazardous reactions

Does not occur.

10.4 Conditions to avoid

Oxidizing materials

10.5 Incompatible materials

Keep away from strong oxidizing or reducing agents, including acids, caustics, chlorites (bleach), halogens and peroxides.

10.6 Hazardous decomposition products

Decomposition of this product under fire conditions may produce carbon oxides, phenols, and other decomposition products.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Method	Species	Result
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available



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Terphenyl	Dermal Inhalation Oral	Rat Rat Rat	LD ₅₀ > 5000 mg/kg LC ₅₀ > 3.8 mg/L after 4 hours LD ₅₀ = 2604 mg/kg
Terphenyl, hydrogenated	Dermal Inhalation Oral	Rat Rat Rat	LD ₅₀ > 2000 mg/kg LC ₅₀ > 4.7 mg/L after 4 hours LD ₅₀ > 10,000 mg/kg

Aspiration hazard	Test Method	Species	Result
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	OECD 403	Rat	LC ₅₀ > 3.8 mg/L
Terphenyl, hydrogenated	OECD 403	Rat	LC ₅₀ > 4.7 mg/L after 4 hours

Carcinogenicity	Test Method	Species	Result
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	--	--	No data available
Terphenyl, hydrogenated	<i>Read across</i>	Mouse	Not carcinogenic

Eye damage / irritation	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	OECD 405	Rabbit	Not irritating
Terphenyl, hydrogenated	Draize method	Rabbit	Not irritating

Germ cell mutagenicity	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	OECD 471	<i>S. typhimurium</i>	Not mutagenic
Terphenyl, hydrogenated	Ames test	<i>S. typhimurium</i>	Not mutagenic

Reproductive toxicity	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	--	--	No data available
Terphenyl, hydrogenated	OECD 414 OECD 416	Rat Rat	NOAEL = 125 mg/kg bodyweight/day NOAEL ≥ 62 mg/kg bodyweight/day

Respiratory sensitization

No data available

Skin sensitization	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	<i>Read across</i>	Guinea pig	Inconclusive
Terphenyl, hydrogenated	<i>Read across</i>	Human	Not sensitizing

Skin corrosion/irritation	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	OECD 404	Rabbit	Not irritating
Terphenyl, hydrogenated	Draize test	Rabbit	Not irritating

Specific target organ toxicity – repeated exposure (STOT-RE)	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	<i>Read across</i>	Rat	Oral = 350 mg/kg; intestinal necrosis
Terphenyl, hydrogenated	--	--	No data available

Specific target organ toxicity – single exposure (STOT-SE)

No data available

11.2 Other information

See SECTION 16 for toxicity references.



SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic Toxicity	Test Method	Species	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	--	No data available
Terphenyl	Read across Read across Read across OECD 201	<i>Daphnia magna</i> <i>O. mykiss</i> <i>P. promelas</i> <i>P. subcapitata</i>	NOEC = 0.011 mg/L LC ₅₀ ≥ 27 mg/L after 96 hours MATC = 0.049 mg/L EC ₅₀ = 0.103 mg/L
Terphenyl, hydrogenated	OECD 203 OECD 204 Read across	<i>O. latipes</i> <i>O. latipes</i> <i>Daphnia magna</i>	LC ₅₀ = 0.12 mg/L after 96 hours LC ₅₀ = 0.0087 mg/L after 21 days NOELR < 1.0 after 21 days

Terrestrial Toxicity

No data available

12.2 Persistence and degradability

Biodegradation	Test Method	Results
Polyphenyls, quater- and higher, partially hydrogenated	--	No data available
Terphenyl	Read across	Not readily biodegradable
Terphenyl, hydrogenated	OECD 307	Not readily biodegradable

12.3 Bioaccumulative potential

Bioconcentration Factor (BCF)	Results
Polyphenyls, quater- and higher, partially hydrogenated	No data available
Terphenyl	BCF = 15 – 80 at 0.25 ppm
Terphenyl, hydrogenated	BCF = 2000 – 5200 at 15 µg/L

Partition Coefficient n-octanol / water (Log K _{ow})	Results
Polyphenyls, quater- and higher, partially hydrogenated	No data available
Terphenyl	5.86
Terphenyl, hydrogenated	>6.5

12.4 Mobility in soil

Soil Mobility	Results
Polyphenyls, quater- and higher, partially hydrogenated	No data available
Terphenyl	Log K _{oc} = 5.0
Terphenyl, hydrogenated	Log K _{oc} = 5.5

12.5 Results of PBT and vPvB assessment

Chemical	Results
Polyphenyls, quater- and higher, partially hydrogenated	No data available
Terphenyl	No chemical assessment is available.
Terphenyl, hydrogenated	This substance is not PBT / vPvB

12.6 Other adverse effects

No further information is available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods



This unused material, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets U.S. EPA (40 CFR Subpart C) criteria for being toxic, corrosive, ignitable, or reactive. This material could also become hazardous waste if it is mixed with or meets a listed hazardous waste. If it is a hazardous waste, regulations in 40 CFR 262-266, 268, 270, and 279 may apply.

SECTION 14. TRANSPORTATION INFORMATION

United States Department of Transportation (DOT)

Not regulated:

49 CFR 171.4c: (1) Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car or aircraft. (2) Single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other requirements of this subchapter provided the packagings meet the general requirements in 173.24 and 173.24a.

Canada Transport - Transportation of Dangerous Goods (TDG)

UN Number: UN3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERPHENYL)
Transport hazard class: 9
Packing group: III

Not regulated (450-liter or less inner packaging): **Special Provision 99 (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.

International Air Transport Association (IATA)

Not regulated

International Carriage of Dangerous Goods by Inland Waterways (AND)

UN Number: UN3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERPHENYL)
Transport hazard class: 9
Packing group: III
MARPOL73/78 and IBC Code: P
Emergency schedules (EmS): F-A, S-F
Special provisions: 274; 335; 375; 601

Not regulated (5-liter or less inner packaging): **Special Provision 375:** These substances when carried in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or 5 kg or less for solids, are not subject to any other provision of ADN provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 of ADR.

International Carriage of Dangerous Goods by Rail (RID)

UN Number: UN3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERPHENYL)
Transport hazard class: 9
Packing group: III
Special provisions: 274; 335; 375; 601

Not regulated (5-liter or less inner packaging): **Special Provision 375:** These substances when carried in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids having a net mass per single or inner packaging of 5 kg or less for solids, are not



subject to any other provisions of the RID provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

International Carriage of Dangerous Goods by Road (ADR)

UN Number: UN3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERPHENYL)
Transport hazard class: 9
Packing group: III
Special provisions: 274; 335; 375; 601

Not regulated (5-liter or less inner packaging): **Special Provision 375:** These substances when carried in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids, are not subject to any other provisions of ADR provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

International Civil Aviation Organization (ICAO)

Not regulated

International Maritime Dangerous Goods Code (IMDG Code)

UN Number: UN3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TERPHENYL)
Transport hazard class: 9
Packing group: III
MARPOL73/78 and IBC Code: P
Emergency schedules (EmS): F-A, S-F
Special provisions: 274; 335; 969

Not regulated (5-liter or less inner packing): **2.10.2.7:** Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to any other provision of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In the case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Australia Inventory (AICS)

All the ingredients are listed.

California Proposition 65

This product does not contain any chemicals known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Canadian Domestic Substances List/Non-Domestic Substances List (DSL/NDSL)

All the ingredients are listed.

China Inventory of Existing Chemical Substances (IECSC)

All the ingredients are listed.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Reportable Quantity

This product is not reportable under 40 CFR Part 302.4.

International Agency for Research on Cancer (IARC)

None of the ingredients are listed.



Japan Existing and New Chemical Substances (ENCS)

All the ingredients are listed.

Korean Existing and Evaluated Chemical Substances (KECL)

All the ingredients are listed.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

All the ingredients are listed.

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR Part 355)

This product is not regulated under Section 302 of SARA and 40 CFR Part 355.

SARA Title III Section 313 (40 CFR Part 372)

This product is not regulated under Section 313 of SARA and 40 CFR Part 372.

SARA Title III Sections 311/312 Hazardous Categorization (40 CFR Part 370)

Hazardous categories for this product are:

Acute = No Chronic = No Fire = No Pressure = No Reactive = No

United States Toxic Substances Control Act (TSCA)

All the ingredients are listed.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been conducted.

SECTION 16.

Safety Data Sheet Creation Date: 15 May 2015
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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.

XCELTHERM® is a registered trademark of Radco Industries, Inc.

Toxicological References

"Terphenyl." *Registration Dossier - ECHA*. European Chemicals Agency, [no date]. Web. 17 May 2017.
 "Terphenyl, hydrogenated" *Registration Dossier - ECHA*. European Chemicals Agency, [no date]. Web. 17 May 2017.

Definitions

ACGIH	American Conference of Governmental Industrial Hygienists
Aquatic Acute 1	Aquatic hazard, acute toxicity, category 1
Aquatic Chronic 1	Aquatic hazard, chronic toxicity, category 1
EPA	United States Environmental Protection Agency
H413	May cause long-lasting harmful effects to aquatic life
HMIS	Hazardous Materials Identification System
LC ₅₀	Lethal concentration that causes 50% death in test population.
LD ₅₀	Lethal dose that causes 50% death in test population.



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NFPA	National Fire Protection Association
OECD	Organisation for Economic Co-operation and Development
OECD 403	OECD Guideline 403: Acute Inhalation Toxicity
OECD 404	OECD Guideline 404: Acute Dermal Irritation/Corrosion
OECD 405	OECD Guideline 405: Acute Eye Irritation/Corrosion Test
OECD 414	OECD Guideline 414: Prenatal Development Toxicity Study
OECD 471	OECD Guideline 471: Bacterial Reverse Mutation Test
OSHA	United States Department of Labor Occupational Safety and Health Administration
PBT	Persistence Bioaccumulation and Toxicity
ppm	Parts per million
TLV	Threshold limit value
TWA	Time-weighted average
vPvB	Very persistent and very bioaccumulative