



RADCOLUBE® FR457

SAFETY DATA SHEET

MIL-H-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision Number: 4.0

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

1.1 Product Identifier

Product Name: RADCOLUBE® FR457

Specifications: MIL-H-19457D(SH)

ISO 9001:2015 Certification Number: C2018-00035

National Stock Numbers (NSN):
9150-01-113-2045 Gallon
9150-01-113-2046 5 Gallon Pail
9150-01-113-2047 55 Gallon Drum

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

This product meets the requirements of a fire-resistant hydraulic fluid for hydraulic systems which are accumulator loaded and operate above 600 pounds per square inch gauge.

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

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.

2.1 Label elements



Hazard pictograms: Environmental Hazard

Signal word: Warning

**SAFETY DATA SHEET****RADCOLUBE® FR457**

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Hazard statements

H410:	Very toxic to aquatic life with long-lasting effects.
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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.

2.2 Other hazards**PBT and vPvB**

PBT and vPvB assessment is not available as chemical safety assessment has not been conducted.

NFPA Hazard IDHealth: 1
Flammability: 1
Reactivity: 0**HMIS Hazard ID**Health: 1
Flammability: 1
Reactivity: 0**SECTION 3. Composition/information on ingredients****3.1 Substances**Di-tert-butylphenyl phenyl phosphateIndex number: Not available
CAS number: 65652-41-7
EC number: 265-859-8
REACH number: Not available
Synonyms: Bis(t-butylphenyl)phenyl phosphateTert-butylphenyl diphenyl phosphateIndex number: Not available
CAS number: 56803-37-3
EC number: 260-391-0
REACH number: Not available
Synonyms: t-Butylphenyl diphenyl phosphate; Phosphoric acid, (1,1-dimethylethyl)phenyl diphenyl ester

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

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Tris(p-tert-butylphenyl) phosphate

Index number: Not available
CAS number: 78-33-1
EC number: 201-106-1
REACH number: Not available
Synonyms: Tri(t-butylphenyl) phosphate

Triphenyl phosphate

Index number: Not available
CAS number: 115-86-6
EC number: 204-112-2
REACH number: 01-2119457432-41
Synonyms: --

3.2 Mixtures**Description of mixture:**

Multicomponent mixture of synthetic base oils and additives.

Component	CAS Number	EC Number	%Content	Classification of Labeling	M-Factor
Tert-butylphenyl diphenyl phosphate	56803-37-3	260-391-0	30 – 35%	Not classified	0
Di-tert-butylphenyl phenyl phosphate	65652-41-7	265-859-8	30 – 35%	Not classified	0
Tris(p-tert-butylphenyl) phosphate	78-33-1	201-106-1	10 – 15%	Not classified	0
Triphenyl phosphate	115-86-6	204-112-2	15 – 25%	Aquatic Acute 1 – H400 Aquatic Chronic 1 – H410	1

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
Di-tert-butylphenyl phenyl phosphate	None established
Tert-butylphenyl diphenyl phosphate	None established
Tris(p-tert-butylphenyl) phosphate	None established
Triphenyl phosphate	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.

**SAFETY DATA SHEET****RADCOLUBE® FR457**

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Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

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

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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 systems where MIL-H-19457 type fluids are required.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters**

Component	Form	Exposure Limits
Tert-butylphenyl diphenyl phosphate	--	None established
Di-tert-butylphenyl phenyl phosphate	--	None established
Tris(p-tert-butylphenyl) phosphate	--	None established
Triphenyl phosphate	Mist, vapor, or fumes	ACGIH (United States) TLV = 3 mg/m ³ NIOSH (United States) IDLH = 1000 mg/m ³ OSHA (United States) PEL = 3 mg/m ³

Biological exposure limits

None established for any of the disclosed components.

8.2 Exposure controls**Appropriate engineering controls**

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

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:	Clear, blue liquid
Odor:	Faint
Odor threshold:	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Evaporation Rate:	554°C (1,030°F)
Explosive properties:	Not determined
Flammability (solid, gas):	Non-flammable
Lower flammability limit:	Not determined
Upper flammability limit:	Not determined
Flash point Cleveland Open Cup (ASTM D92):	Not determined
Flash point Pensky-Martens (ASTM D93):	246°C (475°F)
Initial boiling point and boiling range:	Not determined
Melting point/freezing point:	Not determined
Oxidizing properties:	Not determined
Partition coefficient (n-octanol/water), Log P _{ow} :	Not determined
pH:	Not applicable
Relative density (ASTM D1298) 15.6°C/15.6°C (60°F/60°F):	1.13 – 1.17
Solubility in water:	< 0.1 g/100ml at 20°C (68°F)
Vapor density:	Not determined
Vapor pressure:	0.23 mmHg at 20°C (68°F)
Viscosity (ASTM D445):	4.9 mm ² /s at 100°C (212°F) 44 mm ² /s at 40°C (104°F)

9.2 Other information

No further information is available.

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

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, including acids, caustics, and plastics.

10.6 Hazardous decomposition products

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

SECTION 11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects**

Acute toxicity	Method	Species	Result
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	Dermal Inhalation Oral	Rat Mouse Rat	LD ₅₀ > 10,000 mg/kg NOEC = 757 mg/m ³ after 4 hours LD ₅₀ > 20,000 mg/kg

Aspiration hazard	Test Method	Species	Result
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 403	Mouse	Practically non-toxic

Carcinogenicity	Test Method	Species	Result
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	Read across	Mouse	Non-carcinogenic

Eye damage / irritation	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 405	Rabbit	Not irritating

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

Germ cell mutagenicity	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	Ames Test	Salmonella	Non-mutagenic
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 471	<i>S. typhimurium</i>	Non-mutagenic

Reproductive toxicity	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 414 OECD 415	Rat Rat	NOAEL ≥ 690 mg/kg bw/day NOEL = 690 mg/kg bodyweight

Respiratory sensitization

No data available

Skin sensitization	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 406	Guinea pig	Not sensitizing

Skin corrosion/irritation	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	OECD 404	Rabbit	Not irritating

Specific target organ toxicity – repeated exposure (STOT-RE)	Route	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	Dermal Oral	Rabbit Rat	NOAEL = 1000 mg/kg bodyweight/day NOAEL = 7500 ppm; liver weight increase

Specific target organ toxicity – single exposure (STOT-SE)	Route	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	--	--	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
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	EPA 660/3-75-009 EPA 660/3-75-009 OECD 211	<i>A. bahia</i> <i>O. mykiss</i> <i>Daphnia magna</i>	LC ₅₀ = 0.18 – 0.32 mg/L LC ₅₀ = 0.4 mg/L after 96 hours NOEC = 0.254 mg/L after 21 days

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

Terrestrial Toxicity	Test Method	Species	Results
Di-tert-butylphenyl phenyl phosphate	--	--	No data available
Tert-butylphenyl diphenyl phosphate	--	--	No data available
Tris(p-tert-butylphenyl) phosphate	--	--	No data available
Triphenyl phosphate	Busvine Method Busvine Method	<i>Musca Domestica</i> <i>Chrysomya Putoria</i>	NOEC = 4.3 µg/fly NOEC = 1.5 µg/fly

12.2 Persistence and degradability

Biodegradation	Test Method	Results
Di-tert-butylphenyl phenyl phosphate	--	No data available
Tert-butylphenyl diphenyl phosphate	<i>Read across</i>	Not readily biodegradable
Tris(p-tert-butylphenyl) phosphate	--	No data available
Triphenyl phosphate	OECD 301C	83 – 94% biodegradation after 28 days; readily biodegradable

12.3 Bioaccumulative potential

Bioconcentration Factor (BCF)	Results
Di-tert-butylphenyl phenyl phosphate	No data available
Tert-butylphenyl diphenyl phosphate	528 – 1096
Tris(p-tert-butylphenyl) phosphate	No data available
Triphenyl phosphate	144

Partition Coefficient n-octanol / water (Log K _{ow})	Results
Di-tert-butylphenyl phenyl phosphate	No data available
Tert-butylphenyl diphenyl phosphate	5.12
Tris(p-tert-butylphenyl) phosphate	No data available
Triphenyl phosphate	4.63

12.4 Mobility in soil

Soil Mobility (Log K _{oc})	Results
Di-tert-butylphenyl phenyl phosphate	No data available
Tert-butylphenyl diphenyl phosphate	7400
Tris(p-tert-butylphenyl) phosphate	No data available
Triphenyl phosphate	2596 – 3561

12.5 Results of PBT and vPvB assessment

Chemical	Results
Di-tert-butylphenyl phenyl phosphate	No chemical assessment available or not required
Tert-butylphenyl diphenyl phosphate	The substance is not PBT and vPvB.
Tris(p-tert-butylphenyl) phosphate	No chemical assessment available or not required
Triphenyl phosphate	The substance is not PBT and 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

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

Issue Date: 2 January 2012

Revision Date: 30 March 2018

Revision: 4.0

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

Canada Transport - Transportation of Dangerous Goods (TDG)

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

International Carriage of Dangerous Goods by Inland Waterways (AND)

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

International Carriage of Dangerous Goods by Rail (RID)

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

International Carriage of Dangerous Goods by Road (ADR)

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

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. (CONTAINS TRIPHENYL PHOSPHATE)
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

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.

**SAFETY DATA SHEET****RADCOLUBE® FR457**

MIL-PRF-19457D(SH) HYDRAULIC FLUID, FIRE-RESISTANT, NON-NEUROTOXIC

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Revision: 4.0

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. OTHER INFORMATION

Safety Data Sheet Creation Date: 2 January 2012

Safety Data Sheet Revision Date: 30 March 2018

Revision Number: 4.0

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 PROCESS. 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, 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.

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

Toxicological References"T-butylphenyl Diphenyl Phosphate." *TOXNET*. National Institutes of Health, [no date]. Web. 12 June 2017."Triphenyl phosphate." *Registration Dossier - ECHA*. European Chemicals Agency, [no date]. Web. 12 June 2017.

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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
EPA - 660/3-75-009	United States Environmental Protection Agency Test Guideline for Acute Toxicity Tests With Fish
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long-lasting effects
HMIS	Hazardous Materials Identification System
LD ₅₀	Lethal dose that causes 50% death in test population.
NIOSH	National Institute for Occupational Safety and Health
NOEC	No observable effect concentration
OECD	Organisation for Economic Co-operation and Development
OECD 211	OECD Guideline 211: Daphnia magna Reproduction Test
OECD 301C	OECD Guideline 301C: Ready Biodegradability MITI (Ministry of International Trade and Industry, Japan)
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 406	OECD Guideline 406: Skin Sensitization Test
OECD 414	OECD Guideline 414: Prenatal Development Toxicity Study
OECD 415	OECD Guideline 415: One-Generation Reproduction Toxicity Study
OECD 471	OECD Guideline 471: Bacterial Reverse Mutation Test
PEL	Permissible exposure limit
TLV	Threshold limit value