



# RADCOLUBE® FR257

## Safety Data Sheet

**MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

Issue date: 2/2/2010

Revision date: 7/24/2024

Supersedes: 3/12/2024

Version: 8.0

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

### SECTION 1: Identification

#### 1.1. Identification

Trade name	RADCOLUBE® FR257
Specification:	MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile
Qualification Number (Date):	AFPET/PTPS 19-011 (18 July 2019) AFPET/PTPS 21-008 (20 April 2021) AFPET/PTPS 24-009 (22 July 2024)
NATO Code:	H-538
National Stock Number(s) (NSN):	9150-01-388-7769 (Quart) 9150-01-386-6687 (Gallon) 9150-01-391-2087 (5 Gallon Pail) 9150-01-387-4577 (55 Gallon Drum)

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture:	Synthetic hydrocarbon base hydraulic fluid for use in the -54°C to +200°C (-65°F to 392°F) temperature range in aircraft and missile hydraulic systems.
Use of the substance/mixture:	Hydraulic fluids and additives

#### 1.3. Supplier

Manufacturer	Manufacturer
Radco Industries Inc.	Radco Industries Inc.
CAGE Code 6ZS16	CAGE Code 1RVC4
700 Kingsland Drive	39W930 Midan Drive
Batavia, Illinois 60510	Elburn, Illinois 60147
United States	United States
T (630) 232-7966	T (630) 232-7966
<a href="http://www.radcoind.com">www.radcoind.com</a>	<a href="http://www.radcoind.com">www.radcoind.com</a>

#### 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)
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### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

# RADCOLUBE® FR257

## MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Safety Data Sheet

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

### GHS US classification

Acute toxicity (inhalation:dust,mist) Category 4

H332

Harmful if inhaled

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

H332 - Harmful if inhaled

Precautionary statements (GHS US):

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

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

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

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

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

P331 - Do NOT induce vomiting.

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

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS US classification
dec-1-ene, dimers, hydrogenated (Base Stock)	CAS-No.: 68649-11-6	25 – 75	Acute Tox. 4 (Inhalation), H332 Asp. Tox. 1, H304
Diisooctyl adipate (Base Stock)	CAS-No.: 1330-86-5	Trade Secret	Aquatic Chronic 3, H412
Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (Base Stock)	CAS-No.: 163149-28-8	0 – 25	Asp. Tox. 1, H304
1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (Base Stock)	CAS-No.: 68649-12-7	0 – 25	Asp. Tox. 1, H304
Reaction products of 1-decene and 1-dodecene, hydrogenated (Base Stock)	CAS-No.: 151006-60-9	0 – 25	Asp. Tox. 1, H304

# RADCOLUBE® FR257

## MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Safety Data Sheet

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

1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (colorants)	CAS-No.: 1320-06-5	0.01	Not classified
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Full text of hazard classes and H-statements : see section 16

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### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

No additional information available

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

No additional information available

#### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

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### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

No additional information available

#### 5.2. Specific hazards arising from the chemical

No additional information available

#### 5.3. Special protective equipment and precautions for fire-fighters

No additional information available

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### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

No additional information available

##### 6.1.2. For emergency responders

No additional information available

#### 6.2. Environmental precautions

No additional information available

#### 6.3. Methods and material for containment and cleaning up

No additional information available

#### 6.4. Reference to other sections

No additional information available

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

No additional information available

## RADCOLUBE® FR257

MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Safety Data Sheet

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

### 7.2. Conditions for safe storage, including any incompatibilities

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

<b>RADCOLUBE® FR257</b>	
No additional information available	
<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
No additional information available	
<b>Diisooctyl adipate (1330-86-5)</b>	
No additional information available	
<b>Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)</b>	
No additional information available	
<b>1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)</b>	
No additional information available	
<b>Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)</b>	
No additional information available	
<b>1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)</b>	
<b>USA - OSHA - Occupational Exposure Limits</b>	
Local name	Total Dust (Inert or Nuisance Dust)
OSHA PEL TWA	15 mg/m <sup>3</sup>
	50 mppcf
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts

### 8.2. Appropriate engineering controls

No additional information available

### 8.3. Individual protection measures/Personal protective equipment

No additional information available

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Liquid.

**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

## Safety Data Sheet

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

Color:	red
Odor:	slight
Odor threshold:	No data available
pH:	No data available
Melting point:	No data available
Freezing point:	≤ -63 °C (ASTM D97 Pour point)
Boiling point:	No data available
Flash point:	170 °C
Relative evaporation rate (butyl acetate=1):	No data available
Flammability:	No data available
Vapor pressure:	< 0.01 mm Hg at 20°C
Relative vapor density at 20°C:	No data available
Relative density:	0.821 – 0.8419 at 15.6°C (Water = 1)
Solubility:	Material insoluble in water.
Partition coefficient n-octanol/water (Log Pow):	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, kinematic:	6.8 mm <sup>2</sup> /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

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

No additional information available

**10.2. Chemical stability**

No additional information available

**10.3. Possibility of hazardous reactions**

No additional information available

**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

Safety Data Sheet

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

**10.4. Conditions to avoid**

No additional information available

**10.5. Incompatible materials**

No additional information available

**10.6. Hazardous decomposition products**

No additional information available

**SECTION 11: Toxicological information****11.1. Information on toxicological effects**

Acute toxicity (oral):	Not classified
Acute toxicity (dermal):	Not classified
Acute toxicity (inhalation):	Inhalation:dust,mist: Harmful if inhaled.
Skin corrosion/irritation:	Not classified
Carcinogenicity:	Not classified
Aspiration hazard:	May be fatal if swallowed and enters airways.
Viscosity, kinematic:	6.8 mm <sup>2</sup> /s at 40°C
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Reproductive toxicity:	Not classified

<b>RADCOLUBE® FR257</b>	
ATE US (dust, mist):	2.891 mg/l/4h

<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
LD50 oral rat:	> 5000 mg/kg body weight (OECD 423 method)
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
ATE US (gases):	4500 ppmV/4h
ATE US (vapors):	11 mg/l/4h
ATE US (dust, mist):	1.5 mg/l/4h

<b>Diisooctyl adipate (1330-86-5)</b>	
LD50 oral rat:	> 15800 mg/kg body weight (OECD 401 method)
LD50 dermal rabbit:	> 7940 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	> 5.7 mg/l/4h (OECD 403 method)

<b>Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)</b>	
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)

<b>1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)</b>	
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)

**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

## Safety Data Sheet

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

LC50 Inhalation - Rat:	> 5.06 mg/l/4h (OECD 403 method)
<b>Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)</b>	
LD50 dermal rat:	> 2000 mg/kg body weight (OECD 402 method)
LC50 Inhalation - Rat:	> 5 mg/l (OECD 403 method)
<b>1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)</b>	
LD50 oral rat:	> 5000 mg/kg
<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
Serious eye damage/irritation:	Not classified
<b>Diisooctyl adipate (1330-86-5)</b>	
Serious eye damage/irritation:	Not classified
<b>Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)</b>	
Serious eye damage/irritation:	Not classified
<b>1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)</b>	
Serious eye damage/irritation:	Not classified
<b>Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)</b>	
Serious eye damage/irritation:	Not classified
<b>1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)</b>	
Serious eye damage/irritation:	Not classified
<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
Respiratory or skin sensitization:	Not classified
<b>Diisooctyl adipate (1330-86-5)</b>	
Respiratory or skin sensitization:	Not classified
<b>Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)</b>	
Respiratory or skin sensitization:	Not classified
<b>1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)</b>	
Respiratory or skin sensitization:	Not classified
<b>Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)</b>	
Respiratory or skin sensitization:	Not classified
<b>1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)</b>	
Respiratory or skin sensitization:	Not classified

**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

## Safety Data Sheet

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

<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
Germ cell mutagenicity:	Not classified
<b>Diisooctyl adipate (1330-86-5)</b>	
Germ cell mutagenicity:	Not classified
<b>Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)</b>	
Germ cell mutagenicity:	Not classified
<b>1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)</b>	
Germ cell mutagenicity:	Not classified
<b>Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)</b>	
Germ cell mutagenicity:	Not classified
<b>1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)</b>	
Germ cell mutagenicity:	Not classified
<b>Diisooctyl adipate (1330-86-5)</b>	
LOAEL (animal/male, F0/P):	2102 mg/kg body weight (OECD 415 method)
LOAEL (animal/female, F0/P):	2399 mg/kg body weight (OECD 415 method)
LOAEL (animal/male, F1):	2102 mg/kg body weight (OECD 415 method)
LOAEL (animal/female, F1):	2399 mg/kg body weight (OECD 415 method)
NOAEL (animal/male, F1):	178 mg/kg body weight (OECD 415 method)
NOAEL (animal/female, F1):	203 mg/kg body weight (OECD 415 method)
<b>Diisooctyl adipate (1330-86-5)</b>	
NOAEL (subchronic,oral,animal/male,90 days):	200 mg/kg body weight (OECD 408 method)
NOAEL (subchronic,oral,animal/female,90 days):	387 mg/kg body weight (OECD 408 method)

**SECTION 12: Ecological information****12.1. Toxicity**

<b>Diisooctyl adipate (1330-86-5)</b>	
LC50 - Fish [1]:	> 45 mg/l (Species: Oryzias latipes)
EC50 - Crustacea [1]:	> 48 mg/l (Species: Daphnia magna)



**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

Safety Data Sheet

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

**12.2. Persistence and degradability**

<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
Persistence and degradability:	Biodegradability in soil: no data available. Biodegradability in water: no data available.
<b>Diisooctyl adipate (1330-86-5)</b>	
Persistence and degradability:	Readily biodegradable in water.
Chemical oxygen demand (COD):	2.72 g O <sub>2</sub> /g substance

**12.3. Bioaccumulative potential**

<b>dec-1-ene, dimers, hydrogenated (68649-11-6)</b>	
Bioaccumulative potential:	No bioaccumulation data available.
<b>Diisooctyl adipate (1330-86-5)</b>	
BCF - Fish [1]:	27 (28 day(s), Lepomis macrochirus, Flow-through system, Freshwater, Read-across)
Partition coefficient n-octanol/water (Log Pow):	8.12 Quantitative structure-activity relationship (QSAR)
Bioaccumulative potential:	The substance has low potential for bioaccumulation.

**12.4. Mobility in soil**

<b>Diisooctyl adipate (1330-86-5)</b>	
Organic Carbon Normalized Adsorption Coefficient (Log Koc):	5.2853 Quantitative structure-activity relationship (QSAR)
Ecology - soil:	Potential for mobility in soil is slight.

**12.5. Other adverse effects**

No additional information available

**SECTION 13: Disposal considerations****13.1. Disposal methods**

No additional information available

**SECTION 14: Transport information**

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

**14.1. UN number**

Not regulated for transport

**14.2. UN proper shipping name**

Proper Shipping Name (DOT):	Not applicable
Proper Shipping Name (TDG):	Not applicable
Proper Shipping Name (IMDG):	Not applicable

# RADCOLUBE® FR257

## MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Safety Data Sheet

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

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Proper Shipping Name (IATA): Not applicable

### 14.3. Transport hazard class(es)

#### DOT

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

#### TDG

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

#### IMDG

Transport hazard class(es) (IMDG): Not applicable

#### IATA

Transport hazard class(es) (IATA): Not applicable

### 14.4. Packing group

Packing group (DOT): Not applicable

Packing group (TDG): Not applicable

Packing group (IMDG): Not applicable

Packing group (IATA): Not applicable

### 14.5. Environmental hazards

Other information: No supplementary information available.

### 14.6. Special precautions for user

#### DOT

No data available

#### TDG

No data available

#### IMDG

No data available

#### IATA

No data available

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

Not applicable

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## 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

# RADCOLUBE® FR257

## MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

Safety Data Sheet

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

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

##### dec-1-ene, dimers, hydrogenated (68649-11-6)

Listed on the Canadian DSL (Domestic Substances List)

##### Diisooctyl adipate (1330-86-5)

Listed on the Canadian DSL (Domestic Substances List)

##### Reaction products of 1-decene, 1-dodecene and 1-octene, hydrogenated (163149-28-8)

Listed on the Canadian DSL (Domestic Substances List)

##### 1-Decene, tetramer, mixed with 1-decene trimer, hydrogenated (68649-12-7)

Listed on the Canadian DSL (Domestic Substances List)

##### Reaction products of 1-decene and 1-dodecene, hydrogenated (151006-60-9)

Listed on the Canadian DSL (Domestic Substances List)

##### 1-[[4-[(dimethylphenyl)azo]dimethylphenyl]azo]-2-naphthol (1320-06-5)

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: 07/24/2024

#### Full text of hazard classes and H-statements

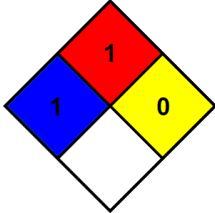
H304	May be fatal if swallowed and enters airways
H332	Harmful if inhaled

**RADCOLUBE® FR257****MIL-PRF-87257D Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile**

Safety Data Sheet

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

Full text of hazard classes and H-statements	
H412	Harmful 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
2.1	GHS-US classification	Modified	

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.