



## MATERIAL SAFETY DATA SHEET

### 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** KE7005

**Synonyms:** Goodrich Kit Components: 74-451-120; 74-451-120-1; 74-451-120-2; 74-451-143; 74-451-152. Goodrich Kits: 74-451-K; 74-451-L; 74-451-O; 74-451-R-1; 74-451-R-2; 74-451-T; 74-451-AB; 74-451-AG.

**Material identifier:** No data available

**Molecular Formula:** Not applicable

**Molecular Weight:** Not applicable

**Company:**

Goodrich Corporation

Sensors and Integrated Systems (Formerly De-icing and Specialty Systems)

1555 Corporate Woods Parkway

Uniontown, Ohio 44685

**Emergency Telephone:**

(800)424-9300

**Business Telephone:**

(330)374-4011

**Intended Use:** No information available

### 2 HAZARDS IDENTIFICATION

#### Emergency Overview

**Physical State:** Liquid

**Color:** Brown

**Odor:** Musty

**DANGER!**

*Flammable liquid and vapor*

Fatal if inhaled.

Harmful if swallowed.

Causes eye and skin irritation.

Mist or vapor irritating to the eyes and respiratory tract.

Can cause allergic skin and respiratory reaction.

High vapor concentrations may cause central nervous system effects.

Reacts with water.

#### Potential Health Effects

**Inhalation:** Fatal if inhaled. Mist or vapor irritating to the respiratory system. High vapor concentrations may cause central nervous system effects. Can cause allergic respiratory reaction. Symptoms may include coughing, asthmatic breathing, headache, drowsiness and other systemic effects.

**Eye Contact:** Causes eye irritation. Exposure may cause eye tearing, redness and discomfort.

**Skin Contact:** Causes skin irritation. Exposure may cause rash, redness, itching, and inflammation.

**Ingestion:** Harmful if swallowed. May cause irritation to the digestive system. Symptoms include irritation, vomiting, and diarrhea.

**Chronic Health Effects:** Prolonged and repeated exposure can cause lung damage and allergic respiratory reaction.

**Target Organ(s):** Eye, skin, lung, respiratory system, central nervous system

**OSHA Regulatory Status:** Hazardous

### 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Weight %
Polymethylene polyphenyl isocyanate	9016-87-9	60
Containing: Diphenylmethane diisocyanate	101-68-8	20 - 25
Methyl ethyl ketone	78-93-3	40

Components not listed are not hazardous or are below reportable limits.

### 4 FIRST AID MEASURES

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Destroy or thoroughly clean contaminated shoes before reuse.

**Ingestion:** If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head lower than the hips to help prevent aspiration. Never give anything by mouth to an unconscious person. Get medical attention.

### 5 FIRE-FIGHTING MEASURES

**Extinguishing Media:** Water spray, dry chemical, carbon dioxide, foam

**Unsuitable Extinguishing Media:** Not applicable.

**Special Fire Fighting Procedures:** Self contained breathing apparatus and full protective clothing must be worn in case of fire. Use water spray to keep fire-exposed containers cool. Stop leak if you can do it without risk. Use water to keep fire exposed containers cool and disperse vapors. Prevent buildup of vapors or gases to explosive concentrations.

**Unusual Fire & Explosion Hazards:** Reacts slowly with water. May polymerize at temperatures above 160°C (320°F). Container may rupture from gas generation in a fire situation. Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back.

**Hazardous Combustion Products:** Carbon oxides, nitrogen oxides, cyanide compounds.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Wear appropriate personal protective equipment (See Section 8).

**Spill Cleanup Methods:** Eliminate all ignition sources. **Small Liquid Spills:** Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

**Large Spillages:** Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use water spray to reduce mist/vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas.

## 7 HANDLING AND STORAGE

**Handling; Personal Precautionary Measures:** Wear appropriate personal protective equipment. Do not breathe mist or vapor. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep out of the reach of children.

**Prevention of Fire and Explosion:** Keep away from ignition sources, heat, sparks and flames. Keep away from strong oxidizing agents. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

**Special Handling Instructions:** In addition to any precautions listed, consult occupational safety and health specialist to ensure that the suggested procedures will be adequate and in compliance with applicable laws and regulations.

**Storage:** Keep container tightly closed in a dry, well-ventilated place. Store away from incompatible materials.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Diphenylmethane diisocyanate	ACGIH	TWA	0.005 ppm	Respiratory sensitizer
<i>Diphenylmethane diisocyanate</i>	NIOSH	IDLH	75 mg/m <sup>3</sup>	--
Diphenylmethane diisocyanate	OSHA	TWA	0.02 ppm	--
Diphenylmethane diisocyanate	Cal OSHA	TWA	0.005 ppm	--
Methyl ethyl ketone	ACGIH	TWA	200 ppm	Irritation; CNS
Methyl ethyl ketone	ACGIH	STEL	300 ppm	Irritation; CNS
Methyl ethyl ketone	OSHA	TWA	200 ppm	--
Methyl ethyl ketone	NIOSH	IDLH	3000 ppm	--

**Hazardous Decomposition Products:** Carbon oxides, nitrogen oxides, cyanide compounds

**Hazardous Polymerizations:** May polymerize at temperatures above 160 °C (320 °F).

## 11 TOXICOLOGICAL INFORMATION

### Specified Substances

#### **Acute Toxicity:**

Chemical Name	Test Results
Diphenylmethane diisocyanate	Oral LD <sub>50</sub> (Rat): 9200 mg/kg
Diphenylmethane diisocyanate	Inhalation LC <sub>50</sub> (Rat): 178 mg/m <sup>3</sup>
Polymethylene polyphenyl isocyanate	Dermal LD <sub>50</sub> (Rabbit): >9400 mg/kg
Polymethylene polyphenyl isocyanate	Oral LD <sub>50</sub> (Rat): 49 g/kg
Polymethylene polyphenyl isocyanate	Inhalation LC <sub>50</sub> (Rat): 490 mg/m <sup>3</sup> /4H
Methyl ethyl ketone	Eye (Rabbit): 80 mg, Minimal to moderate irritation
Methyl ethyl ketone	Skin (Rabbit): 500 mg/24H, Moderate irritation
Methyl ethyl ketone	Dermal LD <sub>50</sub> (Rabbit): 6480 mg/kg
Methyl ethyl ketone	Oral LD <sub>50</sub> (Rat): 2737 mg/kg
Methyl ethyl ketone	Inhalation LC <sub>50</sub> (Rat): 23500 mg/m <sup>3</sup> /8H

**Chronic Toxicity:** Prolonged and repeated exposure can cause lung damage and allergic respiratory reaction.

**Listed Carcinogens:** None

## 12 ECOLOGICAL INFORMATION

**Acute Toxicity:** No data available.

**Degradability:** No data available.

**Bioaccumulation:** No data available.

## 13 DISPOSAL CONSIDERATIONS

**General Information:** Dispose in accordance with applicable federal, state, and local regulations. Mix with compatible chemical which is less flammable and incinerate.

**Disposal Methods:** No specific disposal method required.

**Container:** Empty containers of this material may contain residual liquid, vapors or dust. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container. Precautions previously cited should be observed with such containers. Follow label warnings even after container is emptied

## 14 TRANSPORT INFORMATION

**DOT:**

**UN No.:** 1193  
**Proper Shipping Name:** Methyl ethyl ketone mixture  
**Class:** 3  
**Packaging Group:** II  
**Label(s):** Flammable liquid

**TDG:**

**UN No.:** 1193  
**Proper Shipping Name:** Methyl ethyl ketone mixture  
**Class:** 3  
**Packaging Group:** II  
**Label(s):** Flammable liquid

**IATA:**

**UN No.:** 1193  
**Proper Shipping Name:** Methyl ethyl ketone mixture  
**Class:** 3  
**Packaging Group:** II  
**Passenger and Cargo Pkg Instr:** 305  
**Cargo Pkg Instr:** 307  
**Label(s):** Flammable liquid

**IMDG:**

**UN No.:** 1193  
**Proper Shipping Name:** Methyl ethyl ketone mixture  
**Class:** 3  
**Packaging Group:** II  
**EMS No:** F-E, S-D  
**Label(s):** Flammable liquid

<b>15</b>	<b>REGULATORY INFORMATION</b>
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**Canadian Controlled Products Regulations:** This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

**WHMIS Classification:** B2, D1A, D2A, D2B

**Inventory Status**

This product or all components are listed on the following inventory: TSCA, DSL

**US Regulations**

**CERCLA Hazardous Substance List (40 CFR 302.4):**

Component	Reportable Quantity
Methylene diphenyl diisocyanate	5000 lbs
Methyl ethyl ketone	5000 lbs

**SARA Title III (Emergency Planning & Community Right-to-Know Act (EPCRA))****Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): None****Section 311/312 (40 CFR 370):**

Acute (Immediate)    
  Chronic (Delayed)    
  Fire    
  Reactive    
  Pressure Generating

**Section 313 Toxic Release Inventory (40 CFR 372):**

Component	CAS No.	Concentration
Polymeric Diphenylmethane diisocyanate	9016-87-9	60 %
Methylenbis(phenylisocyanate) (MDI)	101-68-8	20 - 25 %

**Clean Air Act (CAA) Section 112, 1990 Amendments, Statutory Hazardous Air Pollutants:**  
Methylene diphenyl diisocyanate; Methyl ethyl ketone

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** None

**Clean Water Act Section 307 Toxic Pollutants (40 CFR 401.15):** None

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** None

**Drug Enforcement Act:**

**Drug Enforcement Administration (21 CFR 1310.02(b) and 1310.04 (f)(2)):** Methyl ethyl ketone

**Drug Enforcement Administration (21 CFR 1310.12(c)):** Methyl ethyl ketone

**TSCA:**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) (Revised, effective January 16, 2007):** None

**ITAR, US Munitions List, Category V, Explosives & Energetic Materials, Propellants, Incendiary Agents and their Constituents (22 CFR 121):** None

**Homeland Security:**

**ATF List of Explosive Materials (27 CFR 555.23 as amended):** None

**State Regulations**

**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** None

**Massachusetts Right-To-Know List:** Diphenylmethane diisocyanate; Methyl ethyl ketone

**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** None

**Minnesota Hazardous Substances List:** Diisocyanates, Diphenylmethane diisocyanate; Methyl ethyl ketone

**New Jersey Right-To-Know List:** Methylenbis (phenylisocyanate); Methyl ethyl ketone

**Pennsylvania Right-To-Know List:** Benzene, 1,1'-methylenebis[4-isocyanato-; Methyl ethyl ketone

**Rhode Island Right-To-Know List:** Diphenylmethane diisocyanate; Methyl ethyl ketone

**16 OTHER INFORMATION****Hazard Ratings**

	<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Reactivity Hazard</b>	<b>Special Hazard</b>
<b>NFPA</b>	4	3	0	--

	<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Reactivity Hazard</b>
<b>HMIS</b>	4*	3	1

0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; \* - Chronic health effect

**Revision Information: New**

**Prepared by:** Ariel Authoring Services - a 3E Company

**Issue Date:** 5/11/2009

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900100  
900101  
9308-7004  
9308-7018

Material Safety Data Sheet (WHMIS)

SECTION I: PRODUCT INFORMATION

MANUFACTURER/SUPPLIER:  
Goodrich De-icing & Specialty Systems  
1555 Corporate Woods Parkway  
Uniontown, Ohio (USA) 44685

PRODUCT IDENTIFIER:  
0165RR26  
PRODUCT USE:  
Coating/Sealer  
(Kit 74-451-R)

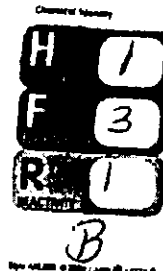
TELEPHONE:  
Emergency: 1-800-424-9300  
Information: (330)374-4011

PRODUCT IDENTIFICATION NO.:  
74-451-169-1, 74-451-169-2  
REV. DATE: 03/25/04

SECTION II: HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	WEIGHT (%)	OSHA PEL	ACGIH TLV	LD <sub>50</sub> (RAT)	LC <sub>50</sub> (RAT)
Methyl Ethyl Ketone* (MEK)	78-93-3	45-50	200 ppm	200 ppm	3.4 g/kg (Oral)	8000ppm/8h Inhalation
Aluminum*	7429-90-5	< 30	15 mg/m <sup>3</sup>	5.1 mg/m <sup>3</sup>	N/A	N/A
Mineral Spirits	64742-48-9	< 7	400 ppm	N/A	N/A	N/A
Naphtha	64742-95-6	< 7	100 ppm	100 ppm	N/A	N/A
Oleic Acid	112-80-1	< 2	N/A	N/A	N/A	N/A
Bis (1,2,2,6,6-Pentamethyl-4-Piperidiny) Sebacate	41556-26-7	< 2	N/A	N/A	N/A	N/A
Methyl 1,2,2,6,6-Pentamethyl-4-Piperidiny Sebacate	82919-37-7	< 1	N/A	N/A	N/A	N/A
Cyclohexanone	108-94-1	10-15	50 ppm	25 ppm (100 mg/m <sup>3</sup> skin)	1000 mg/kg	N/A

\* Chemicals listed under Section 313 of Title 3 of SARA and proposition 65 listed chemicals. The product may also contain trace amounts of other proposition 65 listed chemicals.





## SECTION III: PHYSICAL DATA

BOILING POINT (°F)	175-312	SPECIFIC GRAVITY	1.05 - 1.09
VAPOR PRESSURE (mm Hg) MEK - Cyclohexanone -	70.6 1.95	% VOLATILE BY WEIGHT	55 - 65
VAPOR DENSITY (AIR = 1)	> 1	EVAPORATION RATE (BUTYL ACETATE = 1)	N/A
SOLUBILITY IN WATER (20°C)	SLIGHTLY SOLUBLE	FREEZING POINT (°F)	N/A
ODOR THRESHOLD	N/A	COEFFICIENT OF WATER/OIL DISTRIBUTION	N/A
PHYSICAL STATE (pH = N/A)	LIQUID	ODOR AND APPEARANCE	THIN SILVER LIQUID WITH KETONE/PEPPERMINT ODOR

## SECTION IV: FIRE AND EXPLOSION DATA

FLASH POINT (METHOD): 20°F (TCC)	FLAMMABLE LIMITS IN AIR LEL: 1.1	% BY VOLUME UEL: N/A
EXTINGUISHING MEDIA:	Use dry chemical, foam or carbon dioxide. Do not use halogenated extinguishing agents or water due to aluminum content.	
SPECIAL FIRE FIGHTING PROCEDURES:	Do not enter confined fire space without proper protective equipment; including a NIOSH approved self contained breathing apparatus in positive pressure mode and full protective clothing.	
HAZARDOUS COMPOSITION PRODUCTS:	Decomposition products and amounts produced will depend on decomposition conditions, but will most likely contain carbon monoxide, carbon dioxide, peroxides, aliphatics, oxides of nitrogen, oxides of titanium, oxides of aluminum.	
FLAMMABILITY: FLAMMABLE	AUTO-IGNITION TEMPERATURE:	N/A
EXPLOSION - SENSITIVITY TO IMPACT: N/A	EXPLOSION - SENSITIVITY TO STATIC DISCHARGE:	Yes

## SECTION V: REACTIVITY DATA

CHEMICAL STABILITY: STABLE	CONDITIONS TO AVOID: EXCESSIVE HEAT
INCOMPATIBILITY:	Strong oxidizing agents (including nitric acid and peroxides)
HAZARDOUS DECOMPOSITION PRODUCTS:	Decomposition products and amounts produced will depend on decomposition conditions, but will most likely contain some carbon monoxide, carbon dioxide, peroxides, aliphatics, oxides of nitrogen, oxides of titanium, oxides of aluminum.
REACTIVITY: Not Reactive	CONDITIONS TO AVOID: N/A

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**SECTION VI: TOXICOLOGICAL PROPERTIES**

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ROUTES OF ENTRY:	Skin and Eye Contact, Ingestion, Inhalation of Vapors
ACUTE AFFECTS (SHORT OR SINGLE EXPOSURE):	<ul style="list-style-type: none"><li>- EYE CONTACT: Liquid and/or vapors may cause irritation and/or corneal clouding.</li><li>- INGESTION: May cause gastro intestinal irritation and/or chemical pneumonitis on aspiration into the lungs.</li><li>- SKIN CONTACT: May cause irritation, defatting, or dermatitis on prolonged and repeated contact.</li><li>- INHALATION: May cause throat irritation, headache, nausea, unconsciousness, loss of coordination, dizziness, and even asphyxiation.</li></ul>
CHRONIC AFFECTS OF OVEREXPOSURE:	<ul style="list-style-type: none"><li>- May include kidney, liver damage, or dermatitis.</li><li>- Prolonged exposure to cyclohexanone in animals resulted in weight loss, incoordination, distended ear veins, excess salivation, narcosis, lethargy, hypothermia, lymphocytosis and slight heart, liver, and kidney damage.</li><li>- Reports have associated repeated and prolonged occupational over-exposure to solvents with permanent brain and nervous system damage.</li></ul>
EXPOSURE LIMITS:	<ul style="list-style-type: none"><li>- TWA: Cyclohexanone - 25 ppm (skin)</li><li>- STEL: MEK - 300 ppm</li><li>- See limits for Hazardous Ingredients on page 1.</li></ul>
IRRITANCY OF PRODUCT:	May cause eye, throat and gastro intestinal irritation.
SENSITIZING CAPABILITY OF PRODUCT:	N/A
CARCINOGENICITY:	None Known
TERATOGENICITY AND EMBRYOTOXICITY:	MEK - Embryo/fetotoxic effects have been observed in laboratory rats exposed to over 1000 ppm MEK for most of gestation period.
REPRODUCTIVE TOXICITY:	Cyclohexanone - Reproductive effects have been reported in animals.
MUTAGENICITY:	N/A
SYNERGISTIC MATERIALS:	N/A

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**SECTION VII: PREVENTIVE MEASURES**

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PERSONAL PROTECTIVE EQUIPMENT:	<ul style="list-style-type: none"><li>- GLOVES: Resistant gloves (ie. Butyl, Neoprene, etc.)</li><li>- RESPIRATORY: NIOSH approved respirator should be worn if needed.</li><li>- EYE PROTECTION: Goggles</li><li>- FOOTWEAR: N/A</li><li>- CLOTHING: Appropriate to prevent eye and skin contact.</li><li>- OTHER: Have eyewash and safety shower in area.</li></ul>
ENGINEERING CONTROLS:	Local exhaust to keep vapors below TWA or permissible limits.
LEAK AND SPILL PROCEDURES:	For small spills, wipe up and dispose of in DOT approved waste containers. For larger spills, contain by diking with absorbent material. Do not flush to storm sewer or waterway. Do not flush to sanitary sewer. Dispose of all contaminated materials in accordance with Federal, State, and Local regulations.
WASTE DISPOSAL:	Dispose of product and contaminated materials in accordance with applicable Federal, State, and Local regulations. Incineration may be one option but check applicable regulations and laws.
HANDLING PROCEDURES AND EQUIPMENT:	<p>In addition to any precautions listed, you should consult your occupational safety and health specialist to ensure that the suggested procedures will be adequate and in compliance with applicable laws and regulations.</p> <ul style="list-style-type: none"><li>- Use only in well ventilated area and avoid breathing vapors.</li><li>- Avoid skin and eye contact (especially prolonged or repeated contact).</li><li>- Wash thoroughly with soap and water after handling material.</li><li>- Keep out of the reach of children.</li></ul>
STORAGE REQUIREMENTS:	<ul style="list-style-type: none"><li>- Store in cool, dry, well ventilated place.</li><li>- Store in tightly closed containers.</li><li>- Empty containers of this material may contain residual liquid, vapors or dust. Precautions previously cited should be observed with such containers. Dispose of in accordance with all Federal, State, and Local regulations.</li></ul>
SPECIAL SHIPPING INFORMATION:	DOT CLASSIFICATION: UN-1133, Flammable Liquid, NOS HMIS RATING: H-1, F-3, R-1

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**SECTION VIII: FIRST AID MEASURES**

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**EYES:** Flush eyes with plenty of water for at least 15 minutes (holding eyelids open), longer if there are indications of residual material in eye. See a physician if irritation or corneal cloudiness develops or persists.

**SKIN:** Remove contaminated clothing and launder before reuse. Wash affected area with plenty of soap and water. See a physician if irritation develops or persists.

**INHALATION:** Move to fresh air immediately. If not breathing give artificial respiration, preferably mouth to mouth. If breathing is difficult, administer oxygen. Keep person warm and quiet. Call a physician at once.

**INGESTION:** Do not induce vomiting. Call a physician at once.

**NOTE:** Never give anything by mouth to an unconscious person.

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**SECTION IX: PREPARATION INFORMATION**

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**PREPARED BY:** Terry Sluss  
**TITLE:** Advanced Product Chemist  
**TELEPHONE:** (330) 374-4011  
**ORIGINAL DATE:** 10-28-92  
**REV. DATE:** 03/25/04

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