

# MATERIAL SAFETY DATA SHEET

## Section 1. Product and Company Information

**MANUFACTURER:** Freecom, Inc.  
P.O. Box 2119  
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**DATE OF PREPARATION:** July 28, 2006

**SUPERSEDES MSDS DATED:** July 28, 2004

**PRODUCT NAME:** CeRam-Kote 54®



## Section 2. Composition and Ingredient Information

Common Name	Chemical Name	CAS Number	Weight %
<b>PART-A CeRam-Kote 54® (Base)</b>			
Ceramic Filler	Ceramic Filler	67762-90-7 1344-28-1 14807-96-6	43 to 78
*Proprietary #1	Epoxy Resin	041638-13-5	2 to 6
*Proprietary #2	Epoxy Resin	28064-14-4	1 to 8
*Proprietary #3	Epoxy Resin	25068-38-6	6 to 20
Methyl Ethyl Ketone	2-Butanone	78-93-3	4 to 7
Methyl Isobutyl Ketone	4-Methyl-2-Pentanone	108-10-1	2 to 5
<b>PART-B CeRam-Kote 54® (Curing Agent)</b>			
Modified Aliphatic Polyamine	*Trade Secret	Not Available	2 to 3
Diethylenetriamine Mixture	N-(2-Aminoethyl)-1,2-Ethanediamine	111-40-0	2 to 3
Bisphenol A	4,4'-(1-Methylethylidene) Bisphenol	80-05-7	2 to 3

\*The specific chemical identity of this ingredient is declared proprietary information under 29 CFR 1910.1200, section (i) Trade Secret. Hazard Information is provided in this MSDS for this ingredient.

### Section 3. Physical Data

Description	CeRam-Kote 54® (Catalyzed)	PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Specific Gravity (kg/l)</b>	1.78	1.8612	1.07
<b>Boiling Point</b>	N/A	241°F (116°C)	>200°C
<b>Vapor Density (Air = 1)</b>	> Air	3.2	> Air
<b>Solubility in Water</b>	N/A	Insoluble	Miscible
<b>Viscosity (centipoise)</b>	900 to 1500 cP	1200 to 2000 cP	3,000 to 5,000 cP
<b>pH</b>	Slightly alkaline	Slightly acidic	Alkaline
<b>Appearance and odor</b>	Neutral Base is translucent, aromatic odor	Neutral Base is translucent, aromatic odor	Liquid, amine odor
<b>Density – packaged (on average)</b>	13.7 lbs/gal (6.21 kg.)	13.0 lbs/gal (5.9 kg.)	0.70 lbs/pint (0.32 kg.)
<b>Total Volatiles</b>	10 to 12%	10 to 12%	Nil
<b>Non-Volatiles</b>	89 to 91%	88 to 90%	100%
<b>VOC content</b>	1.63 lbs/gal (196 g/l) less water	1.76 lbs/gal (210.92 g/l) less water	0 lbs/gal (0 g/l)

### Section 4. Fire Fighting Measures

Description	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Flashpoint</b>	64°F (17.8°C) when catalyzed	>200°F
<b>Flammable Limits</b>	LFL: 1.2 - MIBK UFL: 8.0 - MIBK	N/A
<b>Auto Ignition Temperature</b>	750°F (399°C) - IPA	N/A
<b>Extinguishing Media</b>	Foam, CO <sub>2</sub> , or dry chemical	Foam, CO <sub>2</sub> , or dry chemical. A water spray can also be used.
<b>Unusual Fire and Explosion Hazards</b>	Product is a NFPA Class 1B flammable liquid. Prevent smoking, open flame, static and other electrical sparking. Excessive heat may cause lids of containers to pop open from excessive vapor pressure.	Decomposition and combustion products may be toxic.
<b>Fire Fighting Instructions</b>	Treat as a flammable liquid type fire. In a sustained fire wear self-contained breathing apparatus and full protective bunker turnout gear	Use self contained breathing apparatus.
<b>Hazardous Combustion Products</b>	Primary combustion products are carbon monoxide, carbon dioxide, and low molecular weight hydrocarbons. Other undetermined compounds could be released in small quantities.	Carbon monoxide, carbon dioxide, aldehydes, and nitrogen oxides

## Section 5. Reactivity Data

Description	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Stability</b>	Avoid High Heat	Stable
<b>Incompatibility</b>	Avoid organic peroxides and oxidizers	Avoid strong oxidizing agents, acids, copper and its alloys
<b>Hazardous Decomposition Products</b>	Various hydrocarbon fragments. See section 4 of MSDS for combustion products statement.	Carbon monoxide, carbon dioxide, aldehydes, and nitrogen oxides
<b>Hazardous Polymerization</b>	May occur. Avoid excessive heat, contamination and prolonged storage above 70°F	Will not occur.

## Section 6. Health and Safety

	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Primary Routes of Exposure</b>	Inhalation, skin, eye	Dermal
<b>Potential Health Effects</b>	<p><b>Acute (short term):</b> This product if inhaled may cause nose, throat, and mucous membrane irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgment, and general weakness. It may cause moderate irritation to the skin with dryness, cracking, and possible dermatitis with prolonged or repeated contact. Direct eye contact with this product may cause immediate irritation to the eyes with redness, burning, tearing and blurred vision. It may cause mouth, throat and gastrointestinal irritation, nausea, vomiting, and diarrhea if ingested. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.</p> <p><b>Chronic (long term):</b> Prolonged or repeated skin contact may result in irritation, dermatitis marked by rough, dry cracking skin. Contact with the epoxy resin may cause sensitization. In lab animals, overexposure by inhalation to MIBK has been reported to cause liver and kidney abnormalities, and lung and brain damage. Kidney disorders have been reported from human ingestion of Isopropanol.</p>	<p><b>Overexposure effects:</b> Direct or prolonged skin or eye contact can cause skin and eye burns. Swallowing liquid can burn mouth and cause nausea, vomiting, diarrhea, abdominal pain and collapse. Can cause allergic skin and respiratory reactions after repetitive exposure. Animal studies on component (s) have shown effects on liver and fetus.</p>
<b>Medical Conditions Aggravated by Exposure</b>	Persons with a history of chronic respiratory disease, skin disease, or central nervous system disorders may be at increase risk for worsening their conditions from exposure to this product.	Persons with a history of allergic conditions may be at increased risk for worsening their conditions from exposure to this product.

## Section 7. First Aid Measures

Description	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Inhalation</b>	Remove individual to fresh air. If breathing is difficult, administer oxygen and obtain medical aid.	Remove to fresh air. Give oxygen if breathing is difficult
<b>Eyes</b>	Flush with running water for at least 15 minutes. Seek medical attention	Immediately flush eyes with water for at least 15 minutes. Get immediate medical assistance.
<b>Skin</b>	Wash with flowing water. Remove contaminated clothing and launder before re-wearing. If irritation persists, seek medical attention	Promptly wash thoroughly with mild soap and water.
<b>Ingestion</b>	DO NOT induce vomiting. Seek medical attention.	DO NOT induce vomiting. Seek medical attention.

## Section 8. Exposure Controls and Personal Protection

INGREDIENT	OSHA PEL (8-HR TWA)	ACGIH TLV (8-HR TWA)
*Proprietary #1, #2, #3	5 mg/m <sup>3</sup> (respirable fraction) 15 mg/m <sup>3</sup> (total fraction)	10 mg/m <sup>3</sup>
Methyl Ethyl Ketone	200 PPM, STEL 300 PPM	200 PPM, STEL 300 PPM
Methyl Isobutyl Ketone	100 PPM	50 PPM, STEL 75 PPM
Ceramic Filler	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Modified Aliphatic Polyamine	None established	None established
Diethylenetriamine Mixture	1 PPM	1 PPM (skin)

### Exposure controls

### Personal Protection

Description	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Engineering controls</b>	General dilution ventilation and/or exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.	Good general mechanical ventilation is recommended. Local exhaust recommended.
<b>Respiratory Protection</b>	If irritation occurs, or if the TLV or PEL is exceeded, use a NIOSH/MSHA approved air purifying respirator with organic vapor cartridges or canisters, or supplied air respirators. Use respiratory protection in accordance with your company's respiratory program, local regulations or OSHA regulations under 29 CFR 1910.134.	Organic chemical cartridge respirator, if needed.
<b>Dermal Protection</b>	Loose fitting long sleeved shirt, long pants and chemical resistant gloves such as neoprene or natural rubber gloves.	Wear impervious rubber gloves
<b>Eye Protection</b>	Chemical protective goggles.	Splash-proof chemical goggles

## Section 9. Spills, Leaks and Disposal

Description	CeRam-Kote 54®(catalyzed) and/or PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>Land Spill</b>	Prevent material from entering sewers or waterways. Remove all sources of ignition (flames, hot surfaces, and electrical static or frictional sparks). Ventilate area. Absorb with inert materials (vermiculite or sand) and place in a closed container for disposal as solid waste. Wash area well with trisodium phosphate and water.	Avoid all personal contact. Take up with absorbent material. Shovel into closeable containers. Flush contaminated area with water.
<b>Water Spill</b>	Material is mostly insoluble. The material will sink. Notify local environmental, health and wildlife authorities, and water intake operators. Contain with booms and minimize spread on water. Disperse any remaining residue to reduce aquatic harm.	This product is miscible in water. That means it is totally dissolved when mixed with water. Due to this property, this is considered a marine pollutant; however, when mixed with part A, and after the product cures, it is totally inert.
<b>Air Release</b>	Spills of this material may release volatile organic compounds into the air. Spills should be cleaned or covered to prevent volatilization	This product reacts with air by absorbing the moisture out of the air. Take up with absorbent material. Shovel into closeable containers. Flush contaminated area with water.
<b>Disposal Considerations</b>	Characteristic hazardous waste (D001) due to ignitability	Not a hazardous waste under RCRA (40 CFR 261).

## Section 10 Transport Information

Description	PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>DOT/IATA/IMDG Shipping Names</b>	Resin Solution	Amines, Liquid, Corrosive, N.O.S., (Diethylenetriamine Mixture)
<b>Hazard Class or Division</b>	3	8
<b>Secondary</b>	None	None
<b>UN Identification Number</b>	UN 1866	UN 2735
<b>Packing Group</b>	III	III
<b>Label(s) required</b>	Flammable (3)	Corrosive (8)
<b>Quantity Limitations(Air only)</b>		
<b>Passenger Aircraft</b>	60 liters (15 gallons)	5 liters (5 quarts)
<b>Cargo Aircraft</b>	220 liters (58 gallons)	60 liters (15 gallons)
<b>Packing Instructions</b>		
<b>Passenger Aircraft</b>	309	818
<b>Cargo Aircraft</b>	310	820

## Section 11. Regulatory Information

Description	PART-A: CeRam-Kote 54® (Base)	PART-B: CeRam-Kote 54® (Curing Agent)
<b>ERG Number</b>	26	N/A
<b>TSCA Status</b>	Each ingredient is on the inventory	Chemical components listed on inventory
<b>SARA Title III</b>	Sec 304: MIBK Sec 313: MIBK	Sec 313: 4,4'-Isopropylidenediphenol
<b>Clean Air Act</b>	MIBK listed as a HAP	N/A