

# DM Healthcare Products, Inc.

## Safety Data Sheet

Product: K21 For Human Use  
MSDS ID: H1260

Revised Date: 06/01/17  
Replaces Date: 02/16/14

### 1. Product and Company Identification

Trade Name: K21  
Product Code: K21 (XX) where XX is the percentage of K21 in the solution  
Product Description: A solution of Quaternary Ammonium Silane-Functionalized Material in ethanol  
Identified Uses: Antimicrobial material

Company: DM Healthcare Products, Inc.  
10080 Willow Creek Rd.  
San Diego, CA 92131

Telephone: +1 858-348-1122  
Fax: +1 858-348-1123

Emergency phone number (spill, leak, fire, exposure or accident):  
US Domestic 800-424-9300 (CHEMTREC)  
International +1 703-527-3887

### 2. Hazards Identification

#### EMERGENCY OVERVIEW:

OSHA Hazards:  
Flammable liquid, Target Organ Effect, Carcinogen

#### GHS Classification:

Flammable liquid	Category 2 (H225)
Acute Toxicity (Oral)	Category 4 (H302)
Skin Corrosion /Irritation	Category 2 (H315)
Eye irritation	Category 2B (H320)
Specific Target Organ Toxicity (Single Exposure)	Category 3 (H335)
Target organs:	Nerves, Liver, Heart, Liver

#### ENVIRONMENTAL HAZARDS

Hazardous to the Aquatic Environment (Acute)	Not Classified
Hazardous to the Aquatic Environment (Chronic)	Not Classified

#### PICTOGRAM



SIGNAL WORD  
Danger

#### HAZARD STATEMENT(S)

H225	Flammable liquid and vapor
H315 + H320	Causes skin and eye irritation.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation

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### PRECAUTIONARY STATEMENT(S)

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 Call a POISON CENTER or doctor/ physician if you feel unwell.
- P321 Specific treatment (see supplemental first aid instructions on this label).
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/ container to an approved waste disposal plant.

#### HMIS Classification:

Health Hazard: 2\*  
Flammability: 3  
Physical Hazards: 0

#### NFPA Rating:

Health Hazard: 2\*  
Fire: 3  
Reactivity Hazard: 0

### 3. Composition / Information On Ingredients

**SUBSTANCE / MIXTURE**  
**GENERIC NAME**

**MIXTURE**  
K21 Antimicrobial material in ethanol

INGREDIENT	CAS No:	Classification	Concentration
K21 Antimicrobial Material	Not registered	Ac tox. 4	10 – 50 %
Ethanol (ethyl alcohol)	64-17-5	Flam. Liq. 2; Skin irrit. 2; Eye Irrit..2B; STOT SE 3	50 – 90 %

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### 4. First Aid Measures

#### GENERAL ADVICE:

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### INHALATION

Remove the victim to fresh air. If not breathing, give artificial respiration. Consult a physician..

#### SKIN CONTACT

Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible. Wash the affected area under tepid running water using a mild soap.

#### EYE CONTACT

Gently rinse the affected eyes with clean water for at least 15 minutes. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

#### INGESTION

Do not induce vomiting. Do not give an unconscious person anything to drink. Get medical attention.

### 5. Fire and Explosion Hazard Data

#### SPECIFIC HAZARDS WITH REGARD TO FIRE-EXTINGUISHING MEASURES

Shut off the supply. Use extinguishing equipment from the up-wind side. If necessary wear protective clothing including a breathing apparatus.

If the fire extends to the surrounding area, cool the facilities by spraying with water.

Immediately move containers to safe place if possible.

#### EXTINGUISHING MEDIA

In case of fire use water spray, alcohol-resistant foam, dry chemical powder, carbon dioxide, dry sand.

#### SPECIAL HAZARDS ARISING FROM THE MIXTURE

No data available.

### 6. Accidental Release Measures

#### CAUTIONS FOR PERSONNEL

Wear proper equipment and avoid contact with skin and inhalation of vapor. Keep personnel away from downwind of any fire. Shut off all sources of ignition.

#### CAUTIONS FOR ENVIRONMENT

Prevent spills from entering waterways.

#### REMOVAL MEASURE

Shut off the leakage source to stop the leakage. For small spill, absorb spill with absorbent and collect in chemical waste container. For large spill, prevent contamination of surrounding area and move material to a safe place for collection.

#### PREVENTION OF SECOND ACCIDENT

Remove nearby sources of ignition and prepare extinguishing media.

### 7. Handling and Storage

#### HANDLING

##### Engineering measures

Avoid contact with skin and eyes. Wear proper protective equipment to prevent contact with skin or inhalation of the vapor. Pay attention to fire – keep away from sources of ignition. No Smoking.

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### Cautions for safety handling

Use with an enclosed system or a local exhaust ventilation.

### STORAGE

Adequate storage condition

Keep container tightly closed and in a dry and well-ventilated place. Avoid direct rays from the sun. No fire.

Safety adequate container materials

Glass, steel, stainless

## 8. Exposure Controls and Personal Protection Measures

### COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

Components	CAS-No.	Value	Control paramete	Basis
Ethanol	64-17-5	TWA	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract Irritation. Confirmed animal carcinogen with unknown relevance to humans			
		TWA	1,000 ppm 1,900 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	1,000 ppm 1,900 mg/m3	USA. NIOSH Recommended Exposure Limits

### ENGINEERING MEASURES

Use only with adequate ventilation.

### PERSONAL PROTECTIVE EQUIPMENT

#### RESPIRATORY PROTECTION

If necessary, wear a full face respirator with multipurpose combination cartridges as a backup to engineering controls.

#### EYE PROTECTION

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU)

#### SKIN AND BODY PROTECTION

Handle with gloves. Use protective clothing of flame retardant and antistatic materials, protective boots.

## 9. Physical / Chemical Characteristics

### APPEARLANCE, PHYSICAL STATE, COLOR, ODOR

Liquid, Colorless, Characteristic Alcohol Odor

### SAFETY DATA

Boiling point 78°C (172°F) <Ethanol>  
Melting point -114°C (-173°F) <Ethanol>  
Flash Point 14°C (57°F) <Ethanol>  
Explosion Limit Upper : 19 vol%, Lower : 3.3 vol% <Ethanol>  
Vapor Pressure 59.5 hPa (20°C) <Ethanol>

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### 10. Reactivity Hazard Data

STABILITY	Stable under recommended storage conditions.
CONDITIONS TO AVOID	May polymerize on exposure to light. Heat flames and sparks. Extremes of temperature and direct sunlight.
REACTIVITY	No data available .
INCOMPATIBILITY	Oxidizing agents, alkali metals, peroxides, bases, acids, reducing agents, halogens.
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon monoxide (under fire conditions) .

### 11. Toxicological Information

Acute Toxicity (Oral)	LD50I – rat – 7,060 mg/kg <Ethanol>
Acute Toxicity (Dermal)	No data available
Acute Toxicity (Inhalation)	LC50 – rat – 10 h – 20,000 mg/m <sup>3</sup> <Ethanol>
Acute Toxicity (Dusts and Mists)	No data available
Skin Corrosion /Irritation	No data available
Serious Eye Damage /Eye Irritation	No data available
Respiratory or Skin Sensitization	No data available
Carcinogenicity	Mouse – Oral
Tumorigenic:	Equivocal tumorigenic agent by RTECS criteria. Liver:Tumors. Blood:Lymphomas including Hodgkin's disease.
IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive Toxicity	Human – female – Oral <Ethanol>
Effects on Newborn:	Appgar score (human only). Drug dependence <Ethanol>
Specific Target Organ Toxicity (Single Exposure)	May cause respiratory irritation.
Specific Target Organ Toxicity (Repeated Exposure)	No data available
Aspiration Hazard	No data available

### 12. Ecological Information

Hazardous to the Aquatic Environment (Acute)	Not Classified
Hazardous to the Aquatic Environment (Chronic)	Not Classified

### 13. Disposal Considerations

This material may be burned in a chemical incinerator equipped with an afterburner. Follow all regulations in your country.

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### 14. Transport Information

#### DOT (US)

UN Class	Class 3 (Flammable liquid)
UN number	1993
UN proper shipping name	Ethanol
Packing group	II
Reportable Quantity (RQ)	-
Marine pollutant	No

#### IATA

UN Class	Class 3 (Flammable liquid)
UN number	1993
UN proper shipping name	Ethanol
Packing group	II
Sub risk	-

Follow all regulations in your country.

### 15. Regulatory Information

#### TSCA Status:

One component of this material is not listed nor exempt from listing on the TSCA inventory. For R&D use only by trained professionals

#### OSHA Hazards

Flammable liquid, Target Organ Effect, Carcinogen

#### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

Fire Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

Ethanol CAS-No. 64-17-5

#### Pennsylvania Right To Know Components

Ethanol CAS-No. 64-17-5

#### New Jersey Right To Know Components

Ethanol CAS-No. 64-17-5

#### California Prop. 65 Components

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

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**16. Other Information**

The opinions expressed herein are those of qualified experts within DM Healthcare Products, Inc. We believe that the information contained herein is current, as of the date of this SDS. Because the use of this information and of these opinions, and the conditions of use of this product, are not within the control of DM Healthcare Products, Inc., it is the user's legal obligation to determine the conditions of safe use of this product.