



## Kemgard® 605

MoEL's Public Notice No. 2016-19 Standards for Classification and Labeling of Chemical Substances and Safety Data Sheet (SDS)

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### Section 1: PRODUCT AND COMPANY IDENTIFICATION

**A. Product name** Kemgard® 605

**Pure substance/mixture** Mixture

**Aluminum Hydroxide**

**CAS Number** 21645-51-2

**Weight-%** > 75

**Zinc Molybdenum Oxide**

**CAS Number** 22914-58-5

61583-60-6

**Weight-%** < 25

**B. Recommended use and Limitations on use**

**Recommended Use** Smoke suppressant

**Uses advised against** None known

**C. Supplier information**

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### Section 2: HAZARDS IDENTIFICATION

**A. Hazard category/Classification**

**Physical Hazards** Not classified

**Health Hazards** Not classified

**Environmental Hazards** Chronic Aquatic Toxicity Category 3

**B. Warning label items including precautionary statement**

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**Label Elements****Symbols/Pictograms** None**Signal Words** None**Hazard Statements** Harmful to aquatic life with long lasting effects**Precautionary statement  
Prevention**

Avoid release to the environment  
Employ good industrial hygiene practice  
Wash hands thoroughly after handling  
Do not handle until all safety precautions have been read and understood  
Take precautionary measures against static discharges

**Response** Wash skin with soap and water**Storage** Keep in a dry place  
Store away from incompatible materials  
Collect spillage**Disposal** Disposal should be in accordance with applicable regional, national and local laws and regulations**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)**

None known

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS****Pure substance/mixture**

Mixture

| Chemical Name         | CAS Number               | S. Korea (KECL) | Korean GHS Classification   | Weight-% |
|-----------------------|--------------------------|-----------------|---|----------|
| Aluminum Hydroxide    | 21645-51-2               | KE-00980        | Not classified  | > 75     |
| Zinc Molybdenum Oxide | 22914-58-5<br>61583-60-6 | KE-11910        | Acute Tox. 4, H332<br>STOT RE 2, H373<br>Aquatic Acute 1, H400<br>Aquatic Chronic 2, H411 | < 25     |

**Section 4: FIRST AID MEASURES****A. In case of eye contact**

Rinse with water. Get medical attention if irritation develops and persists.

**B. In case of skin contact**

Wash off with soap and water. Get medical attention if irritation develops and persists.

**C. In case of inhalation**

Move to fresh air. Call a physician if symptoms develop or persist.

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**D. In case of swallowing** Rinse mouth. Get medical attention if symptoms occur.

**E. Note to physician** Treat symptomatically.

## Section 5: FIRE FIGHTING MEASURES

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

**Suitable extinguishing media** Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media** None known

### B. Specific hazards arising from the chemical (example: hazardous combustion products)

**Explosion hazard:** None known

### C. Specific methods of fire-fighting

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. In the event of fire and/or explosion do not breathe fumes. Move container from fire area if it can be done without risk.

## Section 6: SPILLAGE, ACCIDENTAL RELEASE MEASURES

**A. Personal precautions, protective equipment and emergency measures** Ensure adequate ventilation. Avoid dust formation. See section 8 for more information.

**B. Environmental precautions** Not considered to be harmful to aquatic life. Avoid discharge into drains, water courses or onto the ground.

**C. Methods and materials for containment and cleaning up** Vacuum or sweep material and place in a disposal container.

## Section 7: HANDLING AND STORAGE

### A. Precautions for safe handling

In case of exposure to environments exceeding the occupational exposure limit, wear a respirator in compliance with national legislation.

### B. Conditions for safe storage (including any incompatibilities)

Keep container tightly closed in a dry and well-ventilated place

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limit values, biological limit values, etc

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**Aluminum Hydroxide**

ACGIH

OSHA

TLV/TWA 8-hr: 1 mg/m<sup>3</sup> (respirable fraction)TWA: 15 mg/m<sup>3</sup> (Total Dust)5 mg/m<sup>3</sup> (Respirable Dust)**Zinc Molybdenum Oxide**

Korea

Korea

ACGIH

OSHA

TWA: 8-hour 0.5 mg/m<sup>3</sup>

STEL: Not established

TWA: 10 mg/m<sup>3</sup> dust0.5 mg/m<sup>3</sup> Respirable fractionTWA: 5 mg/m<sup>3</sup> (respirable); 10 mg/m<sup>3</sup> (dust)PEL: 5 mg/m<sup>3</sup> (respirable)**B. Engineering Controls****Engineering Measures**

Do not handle until all safety precautions have been read and understood

Ensure adequate ventilation, especially in confined areas

Provide a good standard of controlled ventilation (10 to 15 air changes per hour)

Use exhaust ventilation to keep airborne concentrations below exposure limits

In case of insufficient ventilation, wear suitable respiratory equipment

**C. Personal protective equipment**

- Eye protection
- Hand protection
- Body protection

If contact is likely, safety glasses with side shields are recommended.

For prolonged or repeated skin contact use suitable protective gloves.

Wear suitable protective clothing.

**Hygiene Measures**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES****Physical State**

Solid

Powder

**Color**

White to off-white

**Odor**

Odorless

**Odor Threshold**

No information available

**pH:**

8.4 (5% water suspension)

**Melting Point / Melting Range**

Not applicable

**Freezing Point**

Not applicable

**Boiling Point**

Not applicable

**Flash Point**

Non-combustible

**Evaporation Rate**

Not applicable

**Flammability (solid, gas)**

Not applicable

Upper flammability limit:

No data available

Lower flammability limit:

No data available

**Vapor Pressure**

Not applicable

**Vapor Density**

Not applicable

**Relative Density**2.6 g/cm<sup>3</sup>, 20° C**Density**2.5 – 2.7 g/cm<sup>3</sup>, 20°C

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|                              |                    |
|------------------------------|--------------------|
| Water Solubility             | 11.7 mg/l , 25° C  |
| Solubility in other solvents | No data available  |
| Partition coefficient        | Not applicable     |
| Autoignition Temperature     | Not applicable     |
| Decomposition Temperature    | No data available  |
| Viscosity                    | Not applicable     |
| Kinematic viscosity          | No data available. |

## Section 10: STABILITY AND REACTIVITY

### A. Stability and hazardous reaction potential

Stability Stable under normal conditions

Hazardous reaction potential None known

**B. Conditions to avoid (e.g. static discharge, shock or Vibration, etc)** Avoid creating dust. Incompatible materials.

**C. Incompatible materials** Strong oxidizing agents

**D. Hazardous decomposition products** No hazardous decomposition products are known.

## Section 11: TOXICOLOGICAL INFORMATION

### A. Information on likely routes of exposure

- Mouth Not an expected route of exposure
- Eyes Dust contact with the eyes can lead to mechanical irritation
- Skin Prolonged skin contact may cause temporary irritation.

### B. Information on health hazards

#### Aluminum Hydroxide

Oral LD50 > 2000 mg/kg Rat  
Inhalation LC50 Rat > 2.3 mg/l (Al<sub>2</sub>O<sub>3</sub>) Aerosol Maximum attainable concentration

#### Zinc Molybdenum Oxide

Oral LD50 >10000 mg/kg Rat

#### Aluminum Hydroxide

IARC Not Listed

#### Zinc Molybdenum Oxide

IARC Not Listed

Target Organ Effects Kidney (based on tubular degeneration/regeneration of male Han Wistar rats at

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125 mg/kg/day)

|   |  |
|---|--|
| <b>Acute Toxicity</b>                                     | No data available  |
| <b>Respiratory Sensitization</b>                          | Inhalation of dust in high concentration may cause irritation of respiratory system.                   |
| <b>Serious eye damage/eye irritation</b>                  | Dust may cause mechanical irritation to eyes   |
| <b>Skin Corrosion/Irritation</b>                          | Prolonged or repeated contact may dry skin and cause irritation  |
| <b>Skin Sensitization</b>                                 | Not a skin sensitizer  |
| <b>Mutagenicity</b>                                       | No data available  |
| <b>Reproductive Effects</b>                               | This product does not contain any known or suspected reproductive hazards.                             |
| <b>Carcinogenicity</b>                                    | This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP. |
| <b>Target Organ Effects</b>                               | Skin. Eyes. Respiratory system.  |
| <b>Specific target organ toxicity - Single exposure</b>   | No data available.   |
| <b>Specific target organ toxicity - Repeated exposure</b> | May cause damage to organs through prolonged or repeated exposure if inhaled. Kidney.                  |
| <b>Mixture versus substance information</b>               | Mixture.   |

## Section 12: ECOLOGICAL INFORMATION

### A. Ecotoxicity

|   |  |
|---|--|
| <b>Hazardous to the aquatic environment, acute hazard</b>     | Not classified<br>Avoid runoff to waterways and sewers |
| <b>Hazardous to the aquatic environment, long-term hazard</b> | Harmful to aquatic life with long lasting effects      |

**B. Persistence/degradability** No data available

**C. Bioaccumulative potential** No data available

**D. Mobility in soil** No data available

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E. Other adverse effects No data available

**Section 13: DISPOSAL CONSIDERATIONS****A. Method of disposal**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.

**B. Disposal considerations (including disposal of contaminated containers or packaging)** Disposal should be in accordance with applicable regional, national and local laws and regulations

**Section 14: TRANSPORT INFORMATION****Mode of Transportation (Road, Water, Air, Rail)**

|          |               |
|----------|---------------|
| IATA     | Not regulated |
| IMDG/IMO | Not regulated |
| ICAO     | Not regulated |

14.1. UN number None

14.2. UN proper shipping name None

14.3. Transport hazard class(es) None

Subsidiary Risk -

14.4. Packing group None

14.5. Environmental hazards No

14.6. Special precautions for user Not applicable

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not applicable

**A. Method of disposal**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.

**B. Disposal considerations (including disposal of contaminated containers or packaging)** Disposal should be in accordance with applicable regional, national and local laws and regulations

## Section 15: REGULATORY INFORMATION

### National Regulations

#### Aluminum Hydroxide

CAS Number 21645-51-2  
 Weight-% > 75  
 Korean GHS Classification Not classified

#### Zinc Molybdenum Oxide

CAS Number 22914-58-5  
 61583-60-6  
 Weight-% < 25  
 Korean GHS Classification Acute Tox. 4, H332  
 STOT RE 2, H373  
 Aquatic Acute 1, H400  
 Aquatic Chronic 2, H411

### Other domestic and foreign regulations

#### Global Inventories

| Chemical Name         | CAS Number               | EC No     | EU REACH registration number  | Australia (AIC) | Canada (DSL)  | China (IECSC) | Japan                     | S. Korea (KECL) | Mexico                  | New Zealand | Philippines (PICCS) | Taiwan | TSCA: United States |
|-----------------------|--------------------------|-----------|-------------------------------|-----------------|---|---------------|---------------------------|-----------------|-------------------------|-------------|---------------------|--------|---------------------|
| Aluminum Hydroxide    | 21645-51-2               | 244-492-7 | 01-211952<br>9246-39          | Y               | Y   | Y             | (1)-17<br>(ENCS);<br>ISHL | KE-00980        | Y                       | Y           | Y                   | Y      | A                   |
| Zinc Molybdenum Oxide | 22914-58-5<br>61583-60-6 | 245-322-4 | 01-212080<br>0481-68-0<br>000 | N               | Y:<br>DSL-2291<br>4-58<br>-5<br>NDSL:<br>61583-60-<br>6 | Y             | (1)-781<br>(ENCS)(ISHL)   | KE-11910        | Y:<br>(MO-gene<br>rics) | Y           | Y                   | Y      | A                   |

X / Y: Complies ; A: Active ; - / N: Exempt / Not Listed

## Section 16: OTHER INFORMATION

### A. Source of Information

#### Abbreviations and acronyms

IARC (International Agency for Research on Cancer)  
 IATA (International Air Transport Association)  
 IMDG (International Maritime Dangerous Goods)  
 IUCLID (International Uniform Chemical Information Database)  
 WHMIS (Workplace Hazardous Materials Information System)  
 DOT (Department of Transportation)  
 OSHA (Occupational Safety and Health Administration of the US Department of Labor)  
 TWA (Time-Weighted Average)  
 CLP (The Classification, Labeling and Packaging of Substances and Mixtures Regulation (EC 1272/2008))



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PPE (Personal Protection Equipment)  
NIOSH (National Institute for Occupational Safety and Health)  
TDG (Transport of Dangerous Goods) Canada  
CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)  
RQ (Reportable Quantity) (RQ/% in mixture)  
STEL (Short Term Exposure Limit)  
TLV® (Threshold Limit Value)  
DNEL (Derived No Effect Level)  
SVHC (Substances of Very High Concern)  
BOD (Biochemical oxygen demand)  
COD (Chemical oxygen demand)  
ICAO (International Civil Aviation Organization)  
IMDG (International Maritime Dangerous Goods)  
ADR (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
RID (Agreement Concerning the International Carriage of Dangerous Goods by Rail)  
SCBA (Self-Contained Breathing Apparatus) Positive Pressure  
PNEC (Predicted No Effect Concentration)  
TSCA (Toxic Substances Control Act)  
GHS (Globally Harmonized System)

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C. Number of revisions and Date 1.2.1  
of most recent revision

D. Other

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End of Safety Data Sheet