

## SAFETY DATA SHEET

### 1. IDENTIFICATION THE SUBSTANCE / PREPARATION OF THE COMPANY / UNDERTAKING

Product Name: **Denka Natmic AF-S / AF-K**  
 Application: Accelerator for Sprayed Concrete  
 Company: Denka Construction Solutions Malaysia Sdn Bhd  
 Address: No. 18, Jalan Utas 15/7, Seksyen 15, 40200 Shah Alam, Selangor, Malaysia  
 Telephone: 03 – 55108810 Fax: 03 – 55100708

### 2. HAZARD IDENTIFICATION

#### A. Hazard Risk Classification

- Health Hazard
  - Skin Corrosion / Irritation : Category 1
  - Serious Eye Damage / Eye Irritation : Category 1
  - Specific target organ / System toxicity : Category 2

#### B. Label elements including precaution statements.

- Symbol:



- Signal word: Danger
- Hazard Risk Statement
  - H302 Harmful swallowed
  - H315 Cause skin irritation.
  - H318 Causes serious eye damage
  - H335 May cause respiratory irritation
  - H341 Suspected of causing genetic defects
  - H373 May cause damage to organs through prolonged or repeated exposure
- Precautionary Statement (Prevention)
  - P201 Obtain special instruction before use.
  - P202 Do not handle until all safety precautions have been read and understood.
  - P260 Do not breathe dust/fume/gas/mist/vapours/spray.
  - P264 Wash hand thoroughly after handling.
  - P271 Use only outdoors or in a well-ventilated area.
  - P272 Contaminated work clothing should not be allowed out of the workplace.

- Precautionary Statement (Response)
  - P303 IF ON SKIN (or hair): Wash with plenty of water and soap. If skin irritation or rash occur, get medical attention/advice. Wash contaminated clothing before reuse.
  - P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a doctor.
  - P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.
  - P301 + P312 IF SWALLOWED: Call POISON CENTER or doctor if you feel unwell.
- Storage
  - P405 Store locked up.
  - P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	Cas Number	%
Aluminum Sulfate	10043-01-3	55 ~ 70
Diethanolamine	111-42-2	1 ~ 5
Clay	63800-37-3	0.1 ~ 2
Water	7732-18-5	35 ~ 45

All constituents of this product are listed in EINECS (European Inventory of Existing Commercial Chemical Substances) or EILINCS (European List of New Chemical Substances) or are exempt.  
Refer to Section 8 for Occupational Exposure Limits.

### 4. FIRST AID MEASURES

- Eyes:** Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the doctor or at least 15 minutes. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. Speed is essential.
- Skin:** Immediately flush body and clothes with large amounts of water, using safety shower if available. Quickly remove all contaminated clothing including footwear. Wash skin and hair with running water. Continue flushing with water until advised to stop by doctor.
- Inhalation:** Removed from contaminated area. Lay patient down. Keep warm and rested. Prostheses such as false teeth, which may block airway should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. Transport to hospital or doctor. Encourage patient to blow nose to ensure clear breathing passages. Ask patient to rinse mouth with water but to not drink water. Seek medical attention immediately.

Ingestion: Contact a POISON Centre or doctor at once.  
 Urgent hospital treatment is likely to be needed.  
 If swallow do NOT induce vomiting.  
 If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.  
 Observe the patient carefully.  
 Never give liquid to a person showing sign of being sleepy or with reduced awareness.  
 Give water to rinse out mouth, then provide liquid slowly and as much as casually can comfortably drink.  
 Transport to hospital without delay.

## 5. FIRE FIGHTING MEASURES

Fire and explosive properties This product is incombustible. Static charge generated by emptying package in or near flammable vapour may cause flash fire.  
 Suitable Extinguishing Media: Water spray, carbon dioxide, dry chemical powder, or appropriate form.  
 Special Exposure Hazards: Emits toxic fumes under fire conditions.  
 Special Protective Equipment: Fire fighter should wear an approved self-contained breathing apparatus and full protective clothing.

## 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Allow air to circulate freely.  
 Environmental Precautions: Remove all source of fire.  
 Decontamination Procedures: Use non-reactive absorbent and shovel the mixture into containers.

## 7. HANDLING AND STORAGE

Handling: Use in adequate ventilation. Wear protective goggles and gloves. Use protective masks where mist or spray may be generated. Avoid mixing with alkali products. Do not handle with chlorate not to generate poisonous gas. Use rust prevention for equipment not to be rusted. Use appropriate qualities of equipment because of its reactivity with metals.  
 Storage: Outdoor storage should be avoided. Keep a temperature from 5°C to 40°C. Do not store with alkali products. Keep under lock and key. Store in adequate ventilation with keeping vessels sealed. Do not repackage into smaller size. Avoid storing for long time.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Source Material	TWA	STEL mg/m <sup>3</sup>	ppm
Singapore Permissible Exposure Limits of Toxic Substances	Aluminium Sulfate (Aluminum: Soluble Salts, as Al)	2	
Hong Kong. OELs. Code of Practice on Control of Air Impurities (Chemical Substances) in the Workplace (First Edition, April 2002)	Aluminium Sulfate (Aluminum: Soluble Salts, as Al)	2	

	Aluminium Sulfate (Aluminum: Soluble Salts, as Al)	2	
	Sulfuric Acid (Sulfuric Acid) 7664 – 93 – 9	1	3
	Sulfuric Acid (Sulfuric Acid)	1	
	Sulfuric Acid (Sulfuric Acid) 7664 – 93 – 9 Soluble salts, as Al	1	3

Engineering Control Measures:

Personal Protective Equipment:

Respiratory Protection:

Hand Protection

Eye Protection

Safety shower and eye bath. Mechanical exhaust required.

Local exhaust ventilation, protective goggles and gloves, working garments and safety footwear must be used.

Use respirator and components tested and approved under appropriate government standard such as NIOSH (US) or CEN (EU). Respiratory protection is not required. Where protection from nuisance levels of dusts is desired, use type N95 (US) or type P1 (EN 143) dust masks.

Protective Gloves.

Chemical safety goggles.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Suspension
Colour	White
Odour	Odourless
pH	>1.8 ~ 2.8 @ 25°C
Melting point / Freezing point	No data
Boiling Point / Range (°C)	ca. 100°C
Vapour Pressure	Not Available
Relative Density (at 20 °C)	ca. 1.3 ~ 1.5g/cm <sup>3</sup>
Water Solubility	Soluble

## 10. STABILITY AND REACTIVITY

Stability:	Poisonous sulfate oxide gas may be generated by heating or flaming.
Condition to avoid:	No Data
Material to avoid:	No Data
Hazardous Decomposition Product:	Poisonous Gas

## 11. TOXICOLOGICAL INFORMATION

Acute Toxicity	No components are classified as harmful. Not expected to cause systemic effects through skin contact.
Skin Corrosions / Irritation	Expected to be a severe eye irritant, and irritating to skin. Dusts may irritate respiratory system. One component is expected to product highly alkaline solution in water. Repeated or prolonged skin contact may cause irritation progressing to a burn.
Respiratory or skin sensitisation	May cause an allergic skin reaction
Carcinogenicity	International Agency for Research on Centre (IARC) Carcinogens.

## 12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product, but it is not expected to be classified as toxic to aquatic organism on the basis of the known hazard of the components.

Mobility:	The product is partially soluble in water and expected to have a low vapour pressure.
Persistence & Degradability:	Not applicable to inorganic product.
Bioaccumulated Potential:	Not applicable to inorganic product.
Ecotoxicity:	Not expected to be toxic to aquatic organism, but may cause harmful changes I pH in water.

## 13. DISPOSAL CONSIDERATIONS

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environment regulations.

## 14. TRANSPORT INFORMATION

Transport by road/rail (ADR/RID)	Non Hazardous
Maritime Transport (IMDG code)	Non Hazardous
Air Transport (ICAO/IATA)	Non Hazardous

## 15. REGULATORY INFORMATION

Aluminum Sulfate (CAS:10043-01-3) is found on the following regulatory lists:

“IMO IBC Code Chapter 17: Summary of minimum requirements”, “IMO MARPOL 73/78 (Annex II) – List of Other.

Liquid Substances’, “International Council of Chemical Associations (ICCA) – High Production Volume List”

“OECD Representative List of High Production Volume (HPV) Chemicals” Regulation of ingredients.

## 16. OTHER INFORMATION

The data and advice given apply when the product is used for the stated application or applications. The product is not sold as suitable for any other application. Use of the product for applications other than as stated in this sheet may give rise to risks not mentioned in this sheet. The product should not be used than for the stated application or applications without seeking advice from Denka Construction Solutions Malaysia Sdn Bhd.

If this product has been purchased to a third party for use at work, it is the purchaser's duty to take all necessary steps to secure that any person handling or using the product is provided with information in this sheet. It is the responsibility and duty of the employer to inform employees and others who may be affected of any hazards described to this sheet and of any precautions which should be taken. This sheet does not constitute or substitute for the user's own assessment of workplace risk, as required by other health and safety legislation.

**SDS :** Denka Natmic AF-S / AF-K

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Page 6 of 6



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