



**SAFETY DATA SHEET**  
**POLYALUMINIUM CHLORIDE ( PAC 17 )**  
 Commission Regulation (EU) No 2015/830 of 28 May 2015.

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

<b>Product name</b>	POLYALUMINIUM CHLORIDE ( PAC 17 )
<b>Chemical name</b>	Polyaluminium chloride
<b>Product number</b>	DD.44.264
<b>CAS number</b>	1327-41-9
<b>EC number</b>	215-477-2

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

<b>Identified uses</b>	Potable water treatment ,Industrial water treatment , Paper Industry
<b>Uses advised against</b>	No specific uses advised against are identified.

**1.3. Details of the supplier of the safety data sheet**

<b>Supplier</b>	KORUMA KLOR ALKALİ SAN. VE TİC. A.Ş. Deniz Mah. Petrol Ofisi Cad. No:43 Derince / KOCAELİ - TURKEY Tel: 0(262) 239 22 70 E-mail : koruma@koruma.com.tr web: koruma.com
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<b>Contact person</b>	koruma@koruma.com.tr
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<b>Manufacturer</b>	KORUMA KLOR ALKALİ SAN. VE TİC. A.Ş. Deniz Mah. Petrol Ofisi Cad. No:43 Derince / KOCAELİ - TURKEY Tel: 0(262) 239 22 70 E-mail : koruma@koruma.com.tr web: koruma.com
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**1.4. Emergency telephone number**

<b>Emergency telephone</b>	Koruma Tel : (0262)239 22 70
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**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification (EC 1272/2008)**

<b>Physical hazards</b>	Not Classified
<b>Health hazards</b>	Eye Dam. 1 - H318
<b>Environmental hazards</b>	Not Classified

**2.2. Label elements**

## POLYALUMINIUM CHLORIDE ( PAC 17 )

**EC number** 215-477-2

**Pictogram**



**Signal word** Danger

**Hazard statements** H318 Causes serious eye damage.

**Precautionary statements** P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/ doctor.

**Contains** Polyaluminium chloride

### 2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

<b>Polyaluminium chloride</b>	<b>25-40%</b>
CAS number: 1327-41-9	EC number: 215-477-2
<b>Classification</b>	
Eye Dam. 1 - H318	

The full text for all hazard statements is displayed in Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>General information</b>	Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.
<b>Inhalation</b>	Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.
<b>Skin contact</b>	Rinse with water.
<b>Eye contact</b>	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.

## POLYALUMINIUM CHLORIDE ( PAC 17 )

### Protection of first aiders

First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

### 4.2. Most important symptoms and effects, both acute and delayed

#### General information

See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

#### Inhalation

Prolonged inhalation of high concentrations may damage respiratory system.

#### Ingestion

Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

#### Skin contact

Prolonged contact may cause dryness of the skin.

#### Eye contact

Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

### 4.3. Indication of any immediate medical attention and special treatment needed

#### Notes for the doctor

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media

The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

#### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

### 5.2. Special hazards arising from the substance or mixture

#### Specific hazards

Containers can burst violently or explode when heated, due to excessive pressure build-up.

#### Hazardous combustion products

Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

### 5.3. Advice for firefighters

#### Protective actions during firefighting

Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

#### Special protective equipment for firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

## POLYALUMINIUM CHLORIDE ( PAC 17 )

### Personal precautions

No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material.

### 6.2. Environmental precautions

#### Environmental precautions

Large Spillages: Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

### 6.3. Methods and material for containment and cleaning up

#### Methods for cleaning up

Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Approach the spillage from upwind. Small Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. Large Spillages: If leakage cannot be stopped, evacuate area. Flush spilled material into an effluent treatment plant, or proceed as follows. Contain and absorb spillage with sand, earth or other non-combustible material. Place waste in labelled, sealed containers. Clean contaminated objects and areas thoroughly, observing environmental regulations. The contaminated absorbent may pose the same hazard as the spilled material. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

### 6.4. Reference to other sections

#### Reference to other sections

For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Usage precautions

Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

#### Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

### 7.2. Conditions for safe storage, including any incompatibilities

#### Storage precautions

Store in accordance with local regulations. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Bund storage facilities to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.

#### Storage class

Chemical storage.

### 7.3. Specific end use(s)

#### Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

## POLYALUMINIUM CHLORIDE ( PAC 17 )

### SECTION 8: Exposure Controls/personal protection

#### 8.1. Control parameters

##### Occupational exposure limits

Aluminium (Al-soluble salt) WES-TWA : 2 mg/ m<sup>3</sup>

#### 8.2. Exposure controls

##### Protective equipment



##### Appropriate engineering controls

Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimise exposure.

##### Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

##### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

##### Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

##### Hygiene measures

Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

##### Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

##### Environmental exposure controls

Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### SECTION 9: Physical and Chemical Properties

## POLYALUMINIUM CHLORIDE ( PAC 17 )

### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Liquid.
<b>Colour</b>	Yellow.
<b>Odour</b>	Mild. Characteristic.
<b>pH</b>	3.5- 4.5(@20 C, %5 solution)
<b>Melting point</b>	No information available.
<b>Initial boiling point and range</b>	No information available.
<b>Flash point</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Vapour pressure</b>	No information available.
<b>Bulk density</b>	1,37± 0,02 kg/m <sup>3</sup>
<b>Solubility(ies)</b>	Soluble in water.
<b>Partition coefficient</b>	No information available.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Viscosity</b>	10-50 mPa.s (dynamic, @25°C)
<b>Explosive properties</b>	There are no chemical groups present in the product that are associated with explosive properties.
<b>Oxidising properties</b>	There are no chemical groups present in the product that are associated with oxidising properties.

### 9.2. Other information

<b>Other information</b>	Alumina ( Al <sub>2</sub> O <sub>3</sub> ) %17,5 ± 0,5 ; Chlorides(Cl) %20 ± 2 ; Density( 20 °C ) 1,37 ± 0,02 g /cm <sup>3</sup> ; Basicity 43 ± 5
<b>Critical temperature</b>	Not applicable.

## **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

<b>Reactivity</b>	There are no known reactivity hazards associated with this product.
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### 10.2. Chemical stability

<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
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### 10.3. Possibility of hazardous reactions

<b>Possibility of hazardous reactions</b>	No potentially hazardous reactions known.
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### 10.4. Conditions to avoid

<b>Conditions to avoid</b>	There are no known conditions that are likely to result in a hazardous situation.
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### 10.5. Incompatible materials

<b>Materials to avoid</b>	No specific material or group of materials is likely to react with the product to produce a hazardous situation.
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### 10.6. Hazardous decomposition products

## POLYALUMINIUM CHLORIDE ( PAC 17 )

**Hazardous decomposition products** Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** Based on available data the classification criteria are not met.

##### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** Based on available data the classification criteria are not met.

##### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** Based on available data the classification criteria are not met.

##### Skin corrosion/irritation

**Animal data** Based on available data the classification criteria are not met.

##### Serious eye damage/irritation

**Serious eye damage/irritation** Eye Dam. 1 - H318 Causes serious eye damage.

##### Respiratory sensitisation

**Respiratory sensitisation** Based on available data the classification criteria are not met.

##### Skin sensitisation

**Skin sensitisation** Based on available data the classification criteria are not met.

##### Germ cell mutagenicity

**Genotoxicity - in vitro** Based on available data the classification criteria are not met.

##### Carcinogenicity

**Carcinogenicity** Based on available data the classification criteria are not met.

##### IARC carcinogenicity

None of the ingredients are listed or exempt.

##### Reproductive toxicity

**Reproductive toxicity - fertility** Based on available data the classification criteria are not met.

##### **Reproductive toxicity - development**

Based on available data the classification criteria are not met.

##### Specific target organ toxicity - single exposure

**STOT - single exposure** Not classified as a specific target organ toxicant after a single exposure.

##### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** Not classified as a specific target organ toxicant after repeated exposure.

##### Aspiration hazard

**Aspiration hazard** Based on available data the classification criteria are not met.

##### **General information**

The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

##### **Inhalation**

Prolonged inhalation of high concentrations may damage respiratory system.

##### **Ingestion**

Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation.

##### **Skin contact**

Prolonged contact may cause dryness of the skin.

## POLYALUMINIUM CHLORIDE ( PAC 17 )

<b>Eye contact</b>	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.
<b>Route of entry</b>	Ingestion Inhalation Skin and/or eye contact
<b>Target organs</b>	No specific target organs known.

### SECTION 12: Ecological Information

**Ecotoxicity** Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

#### 12.1. Toxicity

**Toxicity** Based on available data the classification criteria are not met.

#### 12.2. Persistence and degradability

**Persistence and degradability** The product contains inorganic substances which are not biodegradable.

#### 12.3. Bioaccumulative potential

**Bioaccumulative potential** No data available on bioaccumulation.

**Partition coefficient** No information available.

#### 12.4. Mobility in soil

**Mobility** The product is water-soluble and may spread in water systems.

#### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

#### 12.6. Other adverse effects

**Other adverse effects** None known.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**General information** The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

**Disposal methods** Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

**Waste class** Waste is classified as hazardous waste.

### SECTION 14: Transport information

#### 14.1. UN number

**UN No. (ADR/RID)** 2581

**UN No. (IMDG)** 2581



## POLYALUMINIUM CHLORIDE ( PAC 17 )

UN No. (ICAO) 2581

UN No. (ADN) 2581

### 14.2. UN proper shipping name

Proper shipping name (ADR/RID) ALUMINIUM CHLORIDE SOLUTION

Proper shipping name (IMDG) ALUMINIUM CHLORIDE SOLUTION

Proper shipping name (ICAO) ALUMINIUM CHLORIDE SOLUTION

Proper shipping name (ADN) ALUMINIUM CHLORIDE SOLUTION

### 14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID classification code C1

ADR/RID label 8

IMDG class 8

ICAO class/division 8

ADN class 8

### Transport labels



### 14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ADN packing group III

ICAO packing group III

### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

### 14.6. Special precautions for user

EmS F-A, S-B

ADR transport category 3

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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

Annex II of MARPOL 73/78 and the IBC Code

**SECTION 15: Regulatory information**

## POLYALUMINIUM CHLORIDE ( PAC 17 )

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

<b>National regulations</b>	Health and Safety at Work etc. Act 1974 (as amended). The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
<b>EU legislation</b>	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 453/2010 of 20 May 2010.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### **SECTION 16: Other information**

<b>Classification procedures according to Regulation (EC) 1272/2008</b>	Eye Dam. 1 - H318: : Calculation method.
<b>Training advice</b>	Read and follow manufacturer's recommendations. Only trained personnel should use this material.
<b>Issued by</b>	Vildan OCAK - vildan.ocak@koruma.com.tr GBF Yeterlilik Belge Tarihi ve Numarası: 01.06.2016/ GBF-A-0-2351
<b>Revision date</b>	15/03/2017
<b>Revision</b>	04
<b>Supersedes date</b>	30/06/2016
<b>SDS number</b>	DD.44.264
<b>Hazard statements in full</b>	H318 Causes serious eye damage.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.