



Material Safety Data Sheet

In accordance with Regulation (EU) No. 830/2015 and Regulation (EU) No. 878/2020

ALUMINIUM SULPHATE SOLID, CRYSTALOHIDATE

MSDS № 3,3 / august 2015

Version: 7 /

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PART 1: Identification of the substance /mixture and of the company / enterprise

<p>1.1. Identifications of the product</p> <p>Registration № 01-2119531538-36-0035</p> <p>CAS number: CAS number: 17927-65-0 ~ Al₂(SO₄)₃.xH₂O / for crystalline hydrate 7784-31-8 ~ Al₂(SO₄)₃.18H₂O / for octadecahydrate</p> <p>EC number: EC number 233-135-0</p> <p>Annex I index number: -----</p> <p>IUPAC name: Aluminum salt of sulfuric acid oktadeka hydrate</p> <p>Trade name: Aluminium sulphate solid</p> <p>-Type product: Mono-constituent substance</p> <p>-Synonyms: Aluminum salt of sulfuric acid crystal hydrate Hydrated aluminum sulfate, aluminum sulfate Solid</p> <p>Molecular formula: Al₂(SO₄)₃.xH₂O</p> <p>Molecular weight range: 666.42 for octadecahydrate</p>	
<p>1.2. Identification uses of the substance, which are importance, and uses, which are not recommended</p>	<p>Raw material for purification of drinking water, industrial water in energy in facilities for chemical water purification</p> <p>With applications in leather industry and other.</p>
<p>1.2.1 <u>Industrial Use</u></p>	<ul style="list-style-type: none"> ➤ Production of aluminum sulphate. Total formation, including pelletisation. ➤ Production of fine chemicals ➤ Formulation (mixing) of preparations and / or repacking ➤ Manufacture of pulp, paper and paper products ➤ Production of base metals, including alloys ➤ Water treatment: treatment of natural and drinking water. ➤ Water purification, wastewater treatment in WWTP sludge ➤ Use as reactive product / raw material.
<p>1.2.2 <u>Professional Use</u></p>	<ul style="list-style-type: none"> ➤ Products such as: pH - regulators, flocculants, precipitants, neutralizing agents ➤ Chemicals for the treatment / disinfection of drinking water and swimming pools ➤ Manufacture of pulp, paper and paper products ➤ Production of base metals, including alloys ➤ Production of non-metallic mineral products, eg. plasters, cements ➤ Construction and building activities ➤ Production of textile, leather, fur ➤ Agriculture, forestry and fishing ➤ printing and reproduction of recorded media ➤ Use in laboratories (vocational);
<p>1.2.3 <u>Consumer Use</u></p>	<ul style="list-style-type: none"> ➤ Consumer use of plaster, cement. ➤ Use of agrochemicals ➤ Domestic use
<p>1.3. Details for Producer of MSDS</p> <p>-Address</p> <p>-Phone</p> <p>-Fax</p>	<p>„ContinVeSt”Ltd, Sofia</p> <p>1111 Sofia, Bulgaria; 6, blvd. Shipchenski Prohod 18, Galaxy Trade Center, block D, fl. 5, office 505</p> <p>+359/ 29 717 028 /029 /032</p> <p>029 717 035- Sofia 042 284 020-Stara Zagora</p> <p>046 661 335- Yambol 061 864 432-Gorna Oryahovitsa</p>



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	-E-mail -Contact	continvest@inet.bg Eng. D. Kazakova:< d_kazakova@continvest.bg >
1.4. Phone numbers for emergency		0618 64 432 – Warehouse,city G. Oryahovitsa 8 ~17 h. Single emergency number – 112 ; +359 2 9154 233 Center for Toxicology at `` Pirogov`` Sofia – 02 515 34 09
PART 2: Hazards		
		-See Part 16. of MSDS
2.1. Classification of the substance or mixture Classification according to CLP (Regulation (EU)№1272/2008)		„Danger” Eye irritation Cat 1 ; Met.Corr.1 /table 3.3.5` CLP ` – Corrosive to metals, hazard category 1 H318 - Causes serious eye damage H290 - May be corrosive to metals. P261; P264; P280; P305+P351+P338; P310; P406 <div style="text-align: right;">/ See Part 16.1./</div>
2.1.1 Adverse effects to human health		Irritation effect by inhalation. Irritating to skin. Risk of serious damage to eye when in contact. Harmful if swallowed and in contact with skin. In larger quantities, it causes irritation to the lungs, leading to coughing and/or shortness of breath.
2.1.2 Adverse environmental effects		By hydrolysis in water, aluminium sulphate leads to formation of sulfuric acid. Given the high water solubility, the product does not accumulate in organisms. The cause of the toxic effect in aquatic organisms is a low pH level
2.2. Label elements		<div style="text-align: center;"></div> <div style="display: flex; justify-content: space-around;">* GHS05* DANGER *</div> H318 - Causes serious eye damage 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 or doctor/physician.
2.3. Other hazards		When hydrolysis Aluminium sulphate in water, it leads to formation of sulphuric acid, causing the irritant effects. Given the high water solubility, the product does not accumulate in organisms. Reason for the toxic effect on aquatic organisms is decreased level of Ph.
	PBT/vPvB	In accordance with Annex XIII of Regulation (EC) № 1907/2006, is not persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB)



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PART 3: Composition/information about components

- See Part 16. Of MSDS

3.1. Substances-In accordance to Regulation 1907/2006 the substance is one-component mixture

Dangerous components	Chem. form. concentr., %	CAS №	EC №	Annex- Index№	Warnings of danger - CLP	Recommendations for safety -CLP	Registration № - REACH
Aluminium sulphate	$\text{Al}_2(\text{SO}_4)_3$ $\text{Al}_2(\text{SO}_4)_3 \cdot x \text{H}_2\text{O}$ $\text{Al}_2(\text{SO}_4)_3 \cdot 16 \text{H}_2\text{O}$ $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$	10043-01-3 17927-65-0 16828-11-8 7784-31-8	233-135-0	-----	H 318 Eye irrit.1 H 290	P261 ; P264 ; P280 ; P310 P305+P351+P338 P406	01-2119531538- 36-0035

Molecular mass
 342,14 g/mol - $\text{Al}_2(\text{SO}_4)_3$.
 666.42g/mol - $\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$

3.2. Mixtures - not applicable

PART 4: First aid measures

4.1. Description of first aid measures

Inhalation-Move victim to fresh air. Apply artificial respiration if the person has stopped breathing.

Seek medical attention immediately

Contact with skin - Wash immediately with plenty of water for at least 15 minutes. Seek medical attention if irritation persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before reuse.

Eye contact - Immediately flush eyes with plenty of water, for at least 15 minutes, while moving eye pupils in all directions, to eliminate product remains, holding eyelids wide opened. It is mandatory to seek medical assistance (ophthalmologist).

If swallowed- Do not induce vomiting. If victim is conscious and has no breathing problems, may give him a little (not more than one glass) of water. Do not be left unattended. Never give anything by mouth to an unconscious person.

IMMEDIATELY - medical care!

4.2. The most significant acute and occur symptoms and effects after a certain period of time

Inhalation - Causes irritation of the respiratory system. Symptoms may include coughing, shortage of air.

Skin contact - causes irritation, with symptoms of redness, itching and pain after more prolonged exposure.

Eye contact-causes irritation, redness, and pain. Can lead to damage to the eyes, which may persist for several days, as well as burns, in prolonged contact.

If swallowed - symptoms include nausea, vomiting and diarrhea. May cause irritation, burns of the mouth and esophagus, abdominal pain, nausea, vomiting.

4.3 Indication of necessity for immediate medical attention and special treatment

It can lead to eye damage that can persist for several days, as well as burns, if prolonged contact. Inhalation of the product can aggravate existing chronic respiratory problems in some people, such as asthma, emphysema, or bronchitis. Skin contact can aggravate existing skin conditions

PART 5: Measures for fire protection

5.1. Extinguishing Media

5.1.1. Suitable extinguishing media	Use foam, carbon dioxide, dry chemical powder, water or other means depending on materials in the immediate vicinity.
5.1.2. Separation of hazardous products	The product is non-flammable and non-explosive, but at high temperatures it can emit (release) toxic and corrosive gases, eg SO ₃
5.1.3. Unsuitable extinguishing media	No information
5.2. Specific hazards arising from substance	Neither product nor its vapors are flammable or explosive, but their corrosive effect on certain metals may cause fire or explosions.
5.3. Advice for firefighters	Firefighters should be equipped with full protective clothing and masks. Keep distance from highly inflammable tanks.



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PART 6: Accidental release measures

6.1. Personal precautions, protective equipments and emergency procedures	Avoid dust formation and do not inhale. Avoid direct contact with the substance. Provide clean indoor air. Wear appropriate personal protective equipments. Isolate the hazardous area. Do not allow entry of unnecessary personnel.
6.2. Precautions to protect environment	Do not allow substance or effluent from cleaning to drain in sewerage or other water roads, surfaces and channels.
6.3. Methods and materials for containment and cleaning	For small dirt / spills: Use appropriate tools such as vacuum to quickly dispose of the contaminated solid mass in a convenient waste..Finish cleaning by salting mixture of sodium bicarbonate and / or soda ash and subsequent spraying water on the contaminated surface and wet collection of the mixture. For larger dirt /spills: Use a shovel for quick collection and put the spilled material in suitable waste container. Avoid generation of dust. If possible, provide ventilation. Finish cleaning by washing with water on the contaminated surface and wet clean/collection of mixture. Collection of spills and / or waste to be carried out in accordance with the applicable provisions of the country.
6.4. Reference to other sections	* Follow the precautions listed in PART 5 . * Follow the precautions listed in PART 8 . * For ways of disposal, see PART13 .

PART 7: Work and Storage

7.1. Precautions for safe working	With the substance should be worked with caution. Workers should be aware of the harmful effects of the product. Wear full protective clothing (PART 8). Work only with adequate ventilation. Do not pick up dust and prevent direct contact with the substance. Wash hands thoroughly with soap and water before eating, drinking or smoking. Avoid contact with water or moisture (the product is hygroscopic) - surfaces become slippery and dangerous to handle and work.
7.2. Conditions for safe storage, including incompatibilities	Store in tightly closed acid-resistance containers. Store in cool, dry, ventilated area with acid-resistant surfaces and good drainage system. Keep away from heat, water and incompatible materials.
7.3. Specific end-use	Containers of this material may be hazardous when they are empty, since they retain product residue, follow all warnings and precautions listed for the product.

PART 8: Exposure control / personal protection

8.1. Control parameters Limit values for chemical agents in the air of working space:	* <u>under Regulation 13 For the protection of workers from risks</u> . Permissible dust concentration of aluminum sulfate in the air, adjusted as aluminum - 2 mg/m³
8.2. Exposure Control	
8.2.1. <u>Appropriate engineering controls</u>	System for local or general exhaust ventilation to maintain exposure f limits of the product below impact of levels carried by the air impact is recommended. It is generally preferred local exhaust ventilation, because it can control the emissions of the contaminant at its source, preventing dispersion throughout the area of operation. Provide showers with water



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	at work.
8.2.2. <u>Individual protection measures, such as personal protective equipments</u>	According Art.4 of Dir.98/24/EO-see Section 7.1.
a) respiratory protection	If the exposure exceeds the permissible limits (50 ppm), it is recommended a full face protection with chemical respirator - cartridge with acid. A gas mask is recommended above this limit..
b) hand protection	Wash hands with soap and water before and after work.
c) protect the eyes	Use protective gloves.
d) protect the skin	If risk of splashing to use safety glasses or full face safety masks.
	Protective clothing: clothing with long sleeves, apron, rubber gloves and boots.
8.2.3. <u>Control of exposure to environmental</u>	Prevent spills into sewer systems, water sources and soils.
PART 9: Physical and chemical properties	
9.1. <u>Information on basic physical and chemical properties</u>	Emission limits in the air for MAC in work space = 2 mg/m³
*Appearance	Colourless to white powder
* Odor	Odorless
*Concentration and *pH	*pH: 3,5 (1% solution)
* Boiling point	No find information
* Flashpoint	No
* Flammability (solid, gas)	Not applicable
* Explosive properties	No
* Oxidizing properties	Corrosion on non-ferrous metals
* Vapor pressure	No find information
* Solubility	Insoluble in alcohol
* Solubility in water	Easily soluble in hot water -1104 g./100 ml @ 100°C
* coefficient (n-octanol/water)	No information
* Viscosity	Not applicable
* Vapor density	Not applicable
* Evaporation rate	No information
9.2. <u>Other information</u>	No
PART 10: Stability and reactivity	
10.1. <u>Reactivity</u>	With an alkali base, an exothermic reaction is carried out. Aluminum sulfate acts corrosively on non-ferrous metals.
10.2. <u>Chemical Stability</u>	The product under normal conditions is stable for handling and storage.
10.3. <u>Possibility of hazardous reactions</u>	When aluminium sulphate is in reaction with water, it becomes a hazardous product because potentially dangerous sulfuric acid can be formed.
10.4. <u>Conditions to avoid</u>	Aluminum sulfate absorbs moisture from the air and forms a slippery layer on working surfaces.
10.5 <u>Incompatible materials</u>	Strong bases, non-ferrous metals.
10.6. <u>Hazardous products of decomposition</u>	Degradation to unstable products are made only at very high temperatures. At temperatures above 650° C will emit toxic and corrosive gases (SOx), which are oxidants - fire hazard.
PART 11: Toxicological information	
11.1. <u>Information about toxicological effects</u>	
11.1.1. <u>Acute toxicity</u>	Oral (LD50): Acute:> 9000 mg / kg [Mouse].



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- impact of substance	> 9000 mg / kg [Rat].
11.1.2. Corrosion / irritation of the skin	* Repeated or continuous contact with skin can cause irritation, especially if there is moisture.
11.1.3. Serious eye damage / eye irritation	Causes serious eye damage when have repeated or prolonged exposure.
11.1.4. Respiratory or skin sensibility	Repeated or prolonged ingestion may affect metabolism, urinary system, blood, skeletal system and brain; may also affect the liver, especially on people with kidney failure who more easily accumulate toxic levels of aluminum, which can lead to encephalopathy and seizures.
11.1.5. Germ cells mutagenicity	No additional information for mutagenicity.
11.1.6. Carcinogenicity	This product no contains substances that are considered as "probable" or "suspected" for human as carcinogens.
11.1.7. Reproductive toxicity	No additional information on reproductive toxicity.
11.1.8. STSO (specific toxicity for some organs) - single exposure	No information on toxic effects in a single exposure.
11.1.9. STSO (specific toxicity for some organs) - repeat exposure	The substance can be toxic to the reproductive system, mucous membranes, skin, eyes, urinary tract and repeated or prolonged exposure to it can lead to irreversible damage.
11.1.10. Aspiration hazard	* Inhalation causes irritation of the mouth and respiratory tract, accompanied by cough or shortness of breath. Can lead to distortion of the airways such as symptoms are usually transient .

PART 12: Ecological information

12.1. Toxicity	240 ppm/48 h / mosquito fish. Possibly short term hazardous degradation products may not occur, but for long term there is no guarantees.
12.2. Persistence and degradability	Methods for determining of biological separable are not applicable to inorganic products.
12.3. Bioaccumulative potential	No information
12.4. Mobility in soil	No information
12.5. Results rate of PBT and vPvB	No information
12.6. Other adverse effects	No information

PART 13: Disposal of wastes

13.1. Suppression of product	This product is neutralized in treatment plants. Where this is not possible, the impurities eliminate by dissolving in large amount of water. Contaminated water is treated most often with solutions of sodium hydroxide. Code of waste- 06.03.14- solid salts
13.2. Disposal of packaging	Packages shall not be destroyed. After washing and drying, they are recycled. Dry by purging with dry air. Packages which can no longer be used are destroyed by special methods according to local regulations. Code of waste - 15.01.02- plastic packaging or 15.01.05 - composites / multilayer packaging

PART 14: Information about transportation

The finished product is not considered hazardous under the Transport Regulations
It is no dangerous charge for air, sea and road transportation.

14.1. UN number	Aluminum sulphate, crystalline hydrate is not subject to the ADR / RID / IMDG / ICAO / IATA regulations.
14.2. UN proper shipping name	Aluminum sulphate, crystalline hydrate is not subject to the ADR / RID / IMDG / ICAO / IATA regulations.



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14.3. Transport hazard class(es)	Aluminum sulphate, crystalline hydrate is not subject to the ADR / RID / IMDG / ICAO / IATA regulations.
14.4. Packing group	Aluminum sulphate, crystalline hydrate is not subject to the ADR / RID / IMDG / ICAO / IATA regulations.
14.5. Environmental hazards	The product is not environmentally hazardous.
14.6. Special precautions for user	Users (customers, carriers) who will move around the product area will comply with all security measures available in an area with dangerous chemicals.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

PART 15: Regulatory information

15.1 Specific regulations / legislation about substance, relating to safety, health and environmental protection. Applicable European regulations and laws:

SEVESO category. - NO

Restriction on the product or substances contained in Annex XVII to EC Regulation 1906/2006: - NO

Substances in the candidate list (Article 59 of REACH) - NO

Substances subject to authorization (Annex XIV REACH) - NO

Substances subject to export declaration under (EC) Regulation 689/2008: - NO

Substances subject to the Rotterdam Convention- NO

Substances subject to the Stockholm Convention: - NO

Healthcare controls - No information available

15.1.1. Prescriptions of the European Union

- Regulation (EC) № 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548 / EEC and 1999/45 / EC and amending Regulation (EC) No 1907/2006.
- Commission Regulation (EC) № 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45 / EC and repealing Regulation (EEC) № 793/93 and Council Regulation (EC) № 1488/94 of the Commission and Council Directive 76/769 / EEC and Directives 91/155 / EEC, 93/67 / EEC, 93/105 / EC and 2000/21 / EC.
- Directive 2012/18 / EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82 / EC.
- Directive 2008/98 / EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives Text with EEA relevance.
- International Chemical Safety Cards (WHO / IPCS / ILO)
- Euro Chlor Instructions (www.eurochlor.org)

15.1.2. National regulatory documents

- Law No. XXV of 2000 on Chemical Safety
- Regulation 44/2000. (27.XII) of the Ministry of Health for separate procedures related to dangerous substances and products and detailed rules for their handling.
- General Regulation 25/2000. (30.IX) of the Ministry of Health and the Social Ministry for Chemical Safety at Work.
- Full text of the ADR to Act No. LXXXIX from 2015 with the amendments in Annexes A and B of 2015 for the international transport of dangerous goods.
- Full text unified form with amendments to the LXXXIII Act of 2015 Bern, Amendment to the International Convention on International Carriage by Rail (COTIF) adopted on 3 June 1999 by Protocol C and the Supplementary Annex.
- Government Ordinance 225/2015. (7.VIII) on the conditions of certain activities related to hazardous waste.
- Directive 2012/18 / UE (SEVESO III) on the control of large enterprises - containing dangerous substances, amending and subsequently repealing Directive 96/82 / CE (SEVESO II).
- ADR / RID / IMDG in force.



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15.2 Chemical safety assessment

Chemical safety assessment of this substance is realized / made as part of the registration of the substance for the manufacturer / supplier in accordance with the Regulation REACH

PART 16: Other information

At various concentrations:

<p>16.1. Classification according to CLP</p> <p>(Regulation (EU)№1272/2008)</p> <p>*H- warnings of hazard</p> <p>*P- safety recommendations</p>	<div style="text-align: center;">  <p>GHS05 * DANGER</p> </div> <p>H318 - Causes serious eye damage H290 - It can be corrosive to metals</p> <p>P261- Avoid breathing dust/fume/gas/mist/vapours/spray P264- Wash hands thoroughly after handling.. P280- Use protective gloves, clothing and goggles. 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 or doctor/physician.. P406- Store in corrosive resistant/... container</p>
<p>16.2. Legend to abbreviations</p>	<p>PBT: Persistent, Bio-accumulative and Toxic; vPvB: very persistent, very bio-accumulative ; DNEL: Derived No-Effect levels; PNEC: Predictable No-Effect Concentrations; ADR: European Agreement concerning the International Carriage of Dangerous Goods by road; RID: Agreement concerning the International Carriage of Dangerous Goods by rail; IMDG: International Maritime Dangerous Goods Code; ICAO/IATA: International Air Transport Association.</p>
<p>16.3. Changes in Material Safety Data Sheet, from previous version.</p>	<p>Updated and prepared in accordance with Regulation (EC) 2015/830 Changes are made in different sections of the SDS</p>
<p>16.4. Written instructions and / or rights.</p>	<p>The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes</p>