

SAFETY DATA SHEET



EM-5100

Section 1. Identification

Product name : EM-5100
Regulatory reference : Not available.
Product description : Zeolite Catalyst

Identification data of the safety data sheet

OKPD 2 : Not available.
TN VED : Not available.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : catalyst
Uses advised against : This product is not recommended for any industrial, professional or consumer use other than the Identified Uses above.

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Section 2. Hazards identification

Classification of the substance or mixture according to GOST 32419-2022 and GOST 32423/24/25-2013

Classification of the substance or mixture : Not classified.

GHS label elements

Hazard statements : No known significant effects or critical hazards.

Contains : zeolite and aluminum oxide, non fibrous

Other hazards which do not result in classification : None known.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
General description of the composition/Method of production : Not available.

Section 3. Composition/information on ingredients

Ingredient name	%	Identifiers	Exposure limits	Type
zeolite	≥75 - ≤90	CAS: 1318-02-1 EC: 215-283-8	Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Цеоли́ты (природные и искусственные)] TWA 8 hours: 2 mg/m³. Form: Aerosol. STEL 15 minutes: 6 mg/m³. Form: Aerosol. Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Silicate-containing dust, silicates, aluminosilicates: zeolites (natural and artificial)] TWA 8 hours: 2 mg/m³. Form: aerosol, dust, respirable fibres. STEL 30 minutes: 6 mg/m³. Form: aerosol, dust, respirable fibres. Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Silicate-containing dust, silicates, aluminosilicates: zeolites (natural and artificial) fiber] TWA 8 hours: 0.1 mg/m³. Form: aerosol, dust, respirable fibres. STEL 30 minutes: 0.5 mg/m³. Form: aerosol, dust, respirable fibres. ACGIH TLV (United States, 1/2024) [Aluminum, metal and insoluble compounds] TWA 8 hours: 1 mg/m³. Form: Respirable fraction.	[1]
aluminum oxide, non fibrous	≥10 - ≤25	CAS: 1344-28-1 EC: 215-691-6	Ministry of Health and Social Development MAC (Russian Federation, 3/2023) TWA 8 hours: 6 mg/m³. Form: Aerosol. ACGIH TLV (United States, 1/2024) [Aluminum, metal and insoluble compounds] TWA 8 hours: 1 mg/m³. Form: Respirable fraction.	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

[1] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Section 4. First-aid measures

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.
Inhalation : No specific data.
Skin contact : No specific data.
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.
Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

General characteristics of fire and explosion hazards : No specific fire or explosion hazard.

Indicators of fire and explosion hazard of chemical products

Flash point : Closed cup: Not applicable.

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.
Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Adsorption of water will generate heat and possibly steam; closed containers may get very hot and build up pressure. If contact with water occurs, large quantities of heat and steam may be generated. Avoid contact with eyes. Avoid contact with skin. Avoid conditions which create dust. Avoid inhalation of dust.

Hazardous combustion products : metal oxide/oxides

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Assure an extended cooling down period to prevent re-ignition. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Confine the spill immediately with booms. Skim from surface. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Static Accumulator : This material is a static accumulator.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
zeolite	Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Цеолиты (природные и искусственные)] TWA 8 hours: 2 mg/m ³ . Form: Aerosol. STEL 15 minutes: 6 mg/m ³ . Form: Aerosol. Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Silicate-containing dust, silicates, aluminosilicates: zeolites (natural and artificial)] TWA 8 hours: 2 mg/m ³ . Form: aerosol, dust, respirable fibres. STEL 30 minutes: 6 mg/m ³ . Form: aerosol, dust, respirable fibres. Ministry of Health and Social Development MAC (Russian Federation, 3/2023) [Silicate-containing dust, silicates, aluminosilicates: zeolites (natural and artificial) fiber] TWA 8 hours: 0.1 mg/m ³ . Form: aerosol, dust, respirable fibres. STEL 30 minutes: 0.5 mg/m ³ . Form: aerosol, dust, respirable fibres. ACGIH TLV (United States, 1/2024) [Aluminum, metal and insoluble compounds] TWA 8 hours: 1 mg/m ³ . Form: Respirable fraction.
aluminum oxide, non fibrous	Ministry of Health and Social Development MAC (Russian Federation, 3/2023) TWA 8 hours: 6 mg/m ³ . Form: Aerosol. ACGIH TLV (United States, 1/2024) [Aluminum, metal and insoluble compounds] TWA 8 hours: 1 mg/m ³ . Form: Respirable fraction.

For dusty conditions, ACGIH recommends for insoluble and poorly soluble particles not otherwise specified an 8-hour TWA of 10 mg/m³ (inhalable particles), 3 mg/m³ (respirable particles).

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : 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.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Solid. [pellet]
- Colour** : White
- Odour** : Odourless
- Odour threshold** : Not applicable.
- pH** : Not applicable.
- Melting point/freezing point** : >1200°C (>2192°F)
- Boiling point or initial boiling point and boiling range** : Not applicable.
- Flash point** : Closed cup: Not applicable.
- Evaporation rate** : Not applicable.
- Flammability** : Ignitable
- Lower and upper explosion limit/flammability limit** : Not applicable.
- Vapour pressure** : Not available.
- Relative vapour density** : Not applicable.
- Relative density** : 1
- Bulk density** : 0.5 g/cm³
- Solubility in water** : Negligible
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- Viscosity** : Not applicable.
- Particle characteristics**
- Median particle size** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Moisture., High energy sources of ignition.

Section 10. Stability and reactivity

Incompatible materials : Strong oxidisers, Strong Acids, Strong Bases, water

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary

- Inhalation** : Minimally Toxic. No end point data for material. Based on assessment of the components.
- Dermal** : Minimally Toxic. No end point data for material. Based on assessment of the components.
- Oral** : Minimally Toxic. No end point data for material. Based on assessment of the components.

Irritation/Corrosion

Conclusion/Summary

- Skin** : Negligible irritation to skin at ambient temperatures. No end point data for material. Based on assessment of the components.
- Eyes** : May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.
- Respiratory** : Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

- Skin** : Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.
- Respiratory** : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary

- : Not expected to be a germ cell mutagen. No end point data for material. Based on assessment of the components.

Carcinogenicity

Conclusion/Summary

- : Not expected to cause cancer. No end point data for material. Based on assessment of the components.

Reproductive toxicity

Conclusion/Summary

- : Not expected to be a reproductive toxicant. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Conclusion/Summary

- : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
EM-5100	Not applicable.	-

Conclusion/Summary

- : Not expected to cause organ damage from a single exposure. No end point data for material.

Aspiration hazard

Conclusion/Summary

- : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. No end point data for material.

Other information

Product

- : Dust may be irritating to eyes and respiratory tract.

Section 11. Toxicological information

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

General characteristics of the impact on environmental objects : No known significant effects or critical hazards.

Ways of affecting the environment : Violation of storage and transport regulations, incorrect placement and incineration of waste, discharge into bodies of water or the ground, accidents and emergencies.

Toxicity

Conclusion/Summary

Acute toxicity : Not expected to be harmful to aquatic organisms.

Chronic toxicity : Not expected to demonstrate chronic toxicity to aquatic organisms

Persistence and degradability

Biodegradability : Material -- Expected to be persistent.

Bioaccumulative potential

Conclusion/Summary : Material -- Potential to bioaccumulate is low.

Environmental limits

Ingredient name	Exposure limits
zeolite	SANPIN 1.2.3685-21, Table 3.13: Maximum allowable concentrations (MAC) of chemicals in drinking water of centralised, including hot, non-centralised water supply systems (Russian Federation) [aluminum and its compounds] MAC: 0.2 mg/l (as Al, total) organoleptic, increases water turbidity, Hazard class 3
aluminum oxide, non fibrous	SANPIN 1.2.3685-21, Table 3.13: Maximum allowable concentrations (MAC) of chemicals in drinking water of centralised, including hot, non-centralised water supply systems (Russian Federation) [aluminum and its compounds] MAC: 0.2 mg/l (as Al, total) organoleptic, increases water turbidity, Hazard class 3 SANPIN 1.2.3685-21, Table 1.1: Maximum allowable concentrations (MAC) of pollutants in the atmospheric air of urban and rural settlements (Russian Federation) [диАлюминий триоксид] MAC - average daily: 0.01 mg/m ³ (as aluminum) resorptive effect, Hazard class 2

Mobility in soil

Mobility : Material -- Can float on water, but will sink when saturated.

Other ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for

Section 13. Disposal considerations

recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport information

	ADR	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Inventory list

Australia inventory (AIIIC)	: All components are listed or exempted.
Canada inventory (DSL-NDSL)	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Japan inventory (CSCL)	: All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act)	: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

Section 16. Other information

History

Date of issue/Date of revision	: 17 July 2024
Date of previous issue	: 19 April 2024
Version	: 1.01

Section 16. Other information

Key to abbreviations :

- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- GOST = Gosudarstvennyy standart
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- SGG = Segregation Group
- UN = United Nations

Procedure used to derive the classification

Not classified.

References : Not available.

Indicates information that has changed from previously issued version.

Product code : 1167145_13665410

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