



PURICALS
Purifying Chemicals

Technical support

This catalogue has been prepared in order to introduce the specification of the products of the Mehrarad Energy Development Co. Undoubtedly, for the effective use of these materials in the water and wastewater treatment industry, it is necessary to consider the a plenty of technical points and sometimes plan and conduct some tests, which require more time and details. Supporting an experienced technical team, this company is ready to provide the necessary advice in these cases. In case of any need to consulting services please do not hesitate to contact us.



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In today's world, staying up-to-date in the water and wastewater treatment industry is of paramount importance. Our company provides the best and high-quality chemical products in this field. serving various industries with the use of advanced technical knowledge and years of experience, we offer products that not only fully meet your needs but also assist you in achieving global standards in water and wastewater treatment.

Puricals factory is one of the main manufacturer of different grades of PAC (Poly AluminumChloride),FeCl₃(Iron(III)Chloride), Aluminum Sulfate Al₂(SO₄)₃, Sodium hypochlorite (NaOCl), Hydrochloric Acid (HCl), and Sodium Hydroxide (Caustic Soda) in Iran. Our goal is to provide high-quality water and wastewater treatment chemicals at the most competitive prices. To achieve this, we utilize the latest technology, maintain an active R&D department, and employ talented graduates from top universities. Puricals factory, located in Mahshahr, southwest of Iran, has successfully obtained several international certifications, including ISO 9001:2015 from IGS and Food Grade certifications.

Poly Aluminum Chloride (PAC)

Poly Aluminum Chloride (PAC) is one of the most efficient water treatment chemicals utilized today. It is widely used in both potable water and wastewater treatment because it provides high coagulation efficiency and it has the widest pH and temperature application ranges compared to other water treatment chemicals.



Applications

Some applications of poly aluminum chloride are: Purification of drinking water;Wastewater treatment of chemical factories and oil and petrochemical industries/Domestic wastewater treatment/Treatment of agricultural effluents/ Pulp and paper industries/ Textile, leather and tannery industries.

Parameter	Specification
Appearance	Light yellow powder or clear yellow liquid
Al ₂ O ₃ Content (%)	Liquid: 9 to 18% powder: 30±2
Basicity (%)	40 - 90
Solubility	Completely soluble in water
pH (1% Solution)	3.5-5.0
Shelf Life	6 to 24 months depending on storage

Caustic soda liquid /powder

Caustic soda, also known as lye, is a white, odorless. chemical available in both liquid and solid powder forms.



Parameter	Specification
Appearance	White solid / Clear colorless liquid
Purity (wt.%)	Liquid: Min. 48% powder: Min. 98%
pH (1% Solution)	13-14 (strongly alkaline)
Solubility	Completely soluble
Shelf Life	Solid: Long term under proper conditions Liquid: 6-12 months

Applications

Caustic soda or sodium hydroxide, is one of the most useful chemical products utilized in numerous industries, including the water treatment industry, soap and detergent factories, aluminum production, the oil, gas, and refining industries, paper and cardboard production, the food and canning industries, medicine and alcohol production, and the leather and textile industries.



Ferric Chloride (FeCl₃)

Physical state:	Liquid
Color:	Orange to brown liquid
Odor:	Acid odor
pH:	< 2.0
Specific Gravity:	1.4 – 1.5 @ 60°F
FeCl ₃ (wt.%)	Min. 38.0
FeCl ₂ (wt.%)	Max. 0.6
HCl (wt.%)	Max. 1.0
Zn (wt.%)	Max. 2

Ferric Chloride, also known as Iron (III) chloride, and Iron chloride, is an industrial scale commodity chemical compound. Its chemical formula is FeCl₃ and its CAS is 0-08-7705.When dissolved in water,the compound undergoes hydrolysis resulting in a brown highly corrosive, acidic solution that is used as a flocculant in sewage treatment and drinking water production. Anhydrous iron (III) chloride is a strong Lewis acid that is used as a catalyst in organic synthesis.

Anionic Polyelectrolyte

anionic polyelectrolyte is a type of polymer that contains multiple ionizable groups which dissociate in aqueous solution to give negatively charged (anionic) sites along the polymer backbone. These materials are water-soluble or swell in water, and they carry a net negative charge, making them useful in a variety of industrial and scientific applications.



Applications

IN Water treatment as flocculants or dispersants/Biomedical: Drug delivery, tissue engineering/ Food industry: Thickening agents, stabilizers/Paper and textile industries: As retention aids or sizing agents.

Parameter	Specification
Degree of Ion (%)	20-30%
Molecular Weight	16-20(million)
PH value	7-10
Water insoluble matter	≤0.1%
Dissolving time	≤60 minutes
Density(g/cm ³)	≥0.60
Appearance	White granular powder

Hydrochloric Acid (HCl)

Hydrochloric acid (HCl) is a solution of hydrogen chloride in water. It is a highly corrosive, strong mineral acid with many industrial uses.

Parameter	Specification
Appearance	Clear, colorless to slightly yellow liquid
Purity (wt.%)	Min. 30.0
pH	<1 (Very strong acid)
Solubility	Completely soluble
Odor	Pungent, irritating smell
Iron as Fe ₂ O ₃ (ppm)	Max. 3.0



Applications

HCl is one of the basic chemicals. Therefore, it has a wide variety of applications such as pickling of steel, production of organic compounds, and production of inorganic compounds, pH control and neutralization, regeneration of ion exchangers, leather processing, household cleaning, and building construction.

Sodium Hypochlorite (NaOCl)

Sodium hypochlorite is an alkaline inorganic chemical compound with the formula NaOCl (also written as NaClO). It is commonly known in a dilute aqueous solution as bleach or chlorine bleach.



Parameter	Specification
Available chlorine	Min. 110.0 g/l
Caustic	Max. 3.0
Color	Light yellow
Dissolved Fe (ppm)	Max. 10.0

Applications

Sodium hypochlorite is most often encountered as a pale greenish-yellow dilute solution referred to as chlorine bleach, which is a household chemical widely used as a disinfectant and bleaching agent. Bleaching. /Cleaning. /Disinfection/Deodorizing/Waste water treatment/Endodontics/Nerve agent neutralization/Reduction of skin damage.

Aluminum Sulfate

Aluminum sulfate (Alum) is a chemical compound with the formula Al₂(SO₄)₃. It is soluble in water and is mainly used as a coagulating/flocculating agent in the purification of drinking water and waste water treatment plants, and also in paper manufacturing. The Al₂(SO₄)₃ *14H₂O (Alum) is commercially the best quality of aluminum sulfate in terms of effectiveness which has the average w/w ratio of Al₂O₃ , of 17%. Alum is commercially available in solid (kibbled, crushed, or powder) and liquid (50% w/w solution) forms.



Item	Measure	Result
Al ₂ O ₃	%	17 ± 0.4
Water Solubility @ 20 °C	gr/lit.	364 (anhydrous) 660 (octadecahydrate)
Insoluble in Water	%	0.3
pH (1% Water Solution)	w/v	> 3
Specific Gravity	Kg/m3	1770
Color		White solid

Applications

Municipal, Industrial, and Agricultural Waste Water Treatment Plants/Pulp & Paper Mills/Ceramic and Tile Factories/Oil, Gas, and Petrochemical Industries/Firefighting Foams Production/Food and Drug/Power Plants.

Cationic Polyelectrolyte

cationic polyelectrolyte is a polymer that contains multiple positively charged groups along its chain when dissolved in water. These polymers are the opposite of anionic polyelectrolytes and play a key role in applications where attraction to negatively charged surfaces or particles is needed.



Applications

Water and wastewater treatment: As flocculants and coagulants to remove suspended solids. Textile and paper industries: For charge neutralization and retention. Biomedical: Gene delivery (PEI is a common vector), antimicrobial coatings. Cosmetics and personal care: As conditioning agents (e.g., hair products).

Parameter	Specification
Appearance	White powder
Ionic character	Cationic
Toxicity	Non-toxic
Solubility	Dispersible fast & complete
Dissoluble Time (min)	<90
Molecular Weight	9 Million
Solid Content (%)	88
Ionization degree (%)	32
pH of 0.1% solution	6.4

PRODUCT PACKAGING:

Our products are packaged in durable containers in accordance with industry standards to protect them from environmental factors and maintain their integrity until they reach the customer.

