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CHEMICALS PVT. LTD.

FERRIC CHLORIDE SOLUTION

Ferric Chloride Solution

- Cost Effectiveness
- Best Quality Product
- Timely Delivery

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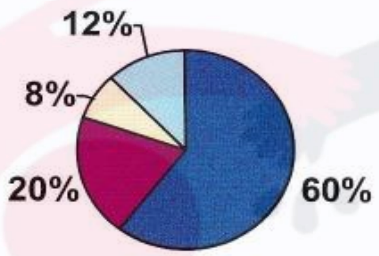
USES AND APPLICATION OF FERRIC CHLORIDE

BASIC DETAILS

Ferric Chloride is also known in the industry by some other names such as :

- ❑ Iron Perchloride
- ❑ Iron Trichloride
- ❑ Ferric Trichloride
- ❑ Ferric Perchloride
- ❑ Iron Chloride

Market Use Distribution



%	Use
60	Municipal Waste Water Treatment.
20	Municipal Potable Water Treatment.
12	Miscellaneous, including electronic and photographic etchants, metal surface treatment, iron compounds, catalyst and as a chlorinating and oxidizing agent.
8	Industrial Water Treatment.

Ferric Chloride Used In

Suspended Solids BOD, COD and Color removal.
Arsenic, TOC & Phosphorous Removal.
Hydrogen Sulfide Control.
Heavy Metal Reduction.
Water Treatment in almost all Industries like;

- *Dairy*
- *Textile*
- *Paper, Board, etc.*
- *Automobiles*
- *Leather Tanneries*

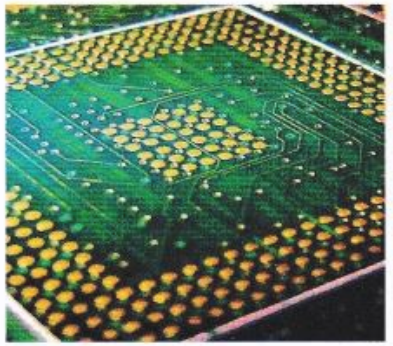
Water Purification

Sanprit's Ferric Chloride is hydrolised in dilute solution forming a precipitate of Ferric Oxide. This precipitate absorbs suspended particles (clay, organic matter, etc.), flocculates and carries the absorbed particles to the bottom. It also removes sulphides and silica. Sanprit's Ferric Chloride is used to increase the rate of setting of sludge in town sewage by the process of hydrolysis forming Ferric Hydroxide which acts as a coagulant. Generally industrial effluents are alkaline and the treatment of such effluents is usually a costly and cumbersome multistage operation, requiring a number of chemicals. Sanprit's Ferric Chloride, because of its flocculating and deodorizing properties, can be used directly in a single stage operation replacing the traditional cumbersome process.

Etching Copper in production of Printed Circuit Boards

Ferric Chloride is most widely used for etching copper in the production of printed circuit boards. This occurs by the redox reaction

$FeCl_3 + Cu = FeCl_2 + CuCl$ followed by $FeCl_3 + CuCl = FeCl_2 + CuCl_2$



Other Uses

- As an etching agent for photo-engraving.
- To produce decorative surface effects on ceramics.
- In the manufacture of glycerin.
- As a catalyst, mordant, oxidizing, chlorination and condensing agent.
- As disinfectant, pigment and cattle feed additive.
- Food industry - slaughter houses, Margarine, Fish meal factories, etc.
- Thermal Power Station.
- Making of Purssian Blue Pigment.
- Alkylation of Benzene.
- For making Ethylene dichloride, which is used for industrial production of vinyl chloride, the monomer for making PVC.
- Off-Shore Oil drilling.

PACKAGING

Sanprit's Liquid Ferric Chloride generally comes in following packaging modes:

Drum, IBC, Carboy or Tanker

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Product Competition

1. Efficiency Analysis

(Based on **"The use of alum, ferric chloride and ferrous sulphate as coagulants in removing suspended solids, colour and COD**- by Hamidi Abdul Aziz, Salina Alias, Faridah Assari and Mohd. Nordin Adlan, School of Civil Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Penang, Malaysia -*Waste Management Research 2007; 25; 556-DOI: 10.1177/0734242X07079876"*

Table : Effect of pH and coagulant dosage on removal efficiencies of suspended solids, colour and COD.

pH	Results	Suspended solids			Colour			COD		
		Alum	FeCl3	FeSO4	Alum	FeCl3	FeSO4	Alum	FeCl3	FeSO4
4	Dose§ (mg L–1)	600	600	600	600	600	600	600	600	600
	Initial* concentration	1106	1106	1068	6450	6460	7275	2660	2565	3320
	Final** concentration	282	59	582	2554	626	5485	1862	1472	3018
	% Removal	**74.5**	**94.7**	**45.5**	**60.4**	**90.3**	**24.6**	**30**	**42.6**	**9.1**
6	Optimum dosage (mg L–1)	2500	2500	2500	2500	2500	2500	2500	2500	2500
	Initial* concentration	983	786	878	7005	7100	7003	3015	2980	3066
	Final** concentration	291	8	506	3159	249	5953	2204	1648	2422
	% Removal	**70.4**	**99**	**42.4**	**54.9**	**96.5**	**15**	**26.9**	**44.7**	**21**
12	Optimum dosage (mg L–1)	600	600	600	600	600	600	600	600	600
	Initial* concentration	1106	932	1068	6460	6658	7270	3210	3565	3320
	Final** concentration	90	52	197	2558	1738	2690	2793	2777	2825
	% Removal	**91.9**	**94.4**	**81.6**	**60.4**	**73.9**	**63**	**13**	**22.1**	**14.9**

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2. A superior substitute for Water Treatment

S.No.	Parameters	Krasoma's Ferric Chloride	Alum
1.	Dosage/ Consumption	Low quantity (25-35 ppm)	High Quantity (35-80 ppm)
2.	Price	More Favourable	Less Favourable
3.	COD, BOD Reduction	High	Low
4.	Range of pH	Wider range (3.5-9)	6.5-8.5 only
5.	Flock Formation	More (dense heavy flock)	Less (spongy flock)
6.	Flock Settlement	Rapidly	Slowly
7.	Sludge Formation	Almost Nil	High
8.	Results in		
	Colour Removal	Better	Good
	Phosphate Removal	Better	Good
	Sulphide Removal	Better	Good
	Eutrophication	Better	Good
	Sewage Treatment	Better	Good
9.	Easiness of Use	Direct application, as it is a ready-made solution and there is no need to add any catalyst or filtration etc. Requires only single storage space.	Breaking the Alum slab to prepare the solution form is a cumbersome process. Requires storage for both slab as well as solution.

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Product Specification

Parameters	Specification (% by weight)
Ferric Chloride Content	40% (± 3%)
Ferrous Chloride	NIL.
Free Chlorine	NIL.
Insolubles	0.03% max.
Sulphates	NIL.
Nitrates	NIL.
Alkalies and Alkaline Earth	0.02% max.
Copper, as Cu	NIL.
Zinc, as Zn	NIL.
Arsenic	NIL.
Density	1.46 (± 0.05) @ 25°C.
Acidity	NIL.

Before Treatment ***After Treatment***

River Water Treatment

Sludge Water Treatment

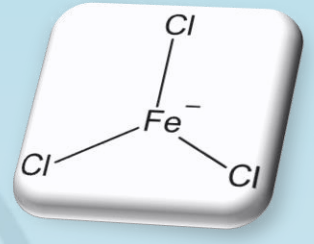
Industrial Water Treatment

USES AND APPLICATION

- Water Treatment
- Printed Circuit Board Manufacturing
- For making Ethlyne-Di-Chloride
- As an etching agent for photo engraving
- To produce decorative surface on ceramics
- In manufacture of glycerin
- As a catalyst, mordant, oxidising, chlorinating and condensing agent
- Making of Purssian Blue Pigment
- Alkylation of Benzene
- Other areas like disinfectant, pigment and cattle feed additive, slaughter houses, Fish meal factories etc.

PRODUCTS

- *Ferric Chloride*
- *Ferrous Chloride*
- *Free Chlorine*
- *Insolubles*



Use in Water Treatment Plant (WTP/STP)

Contact Us

To enable us to serve you better and give you a quality product,
let us know your queries:

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"Save Water, Save Live"

Thank You