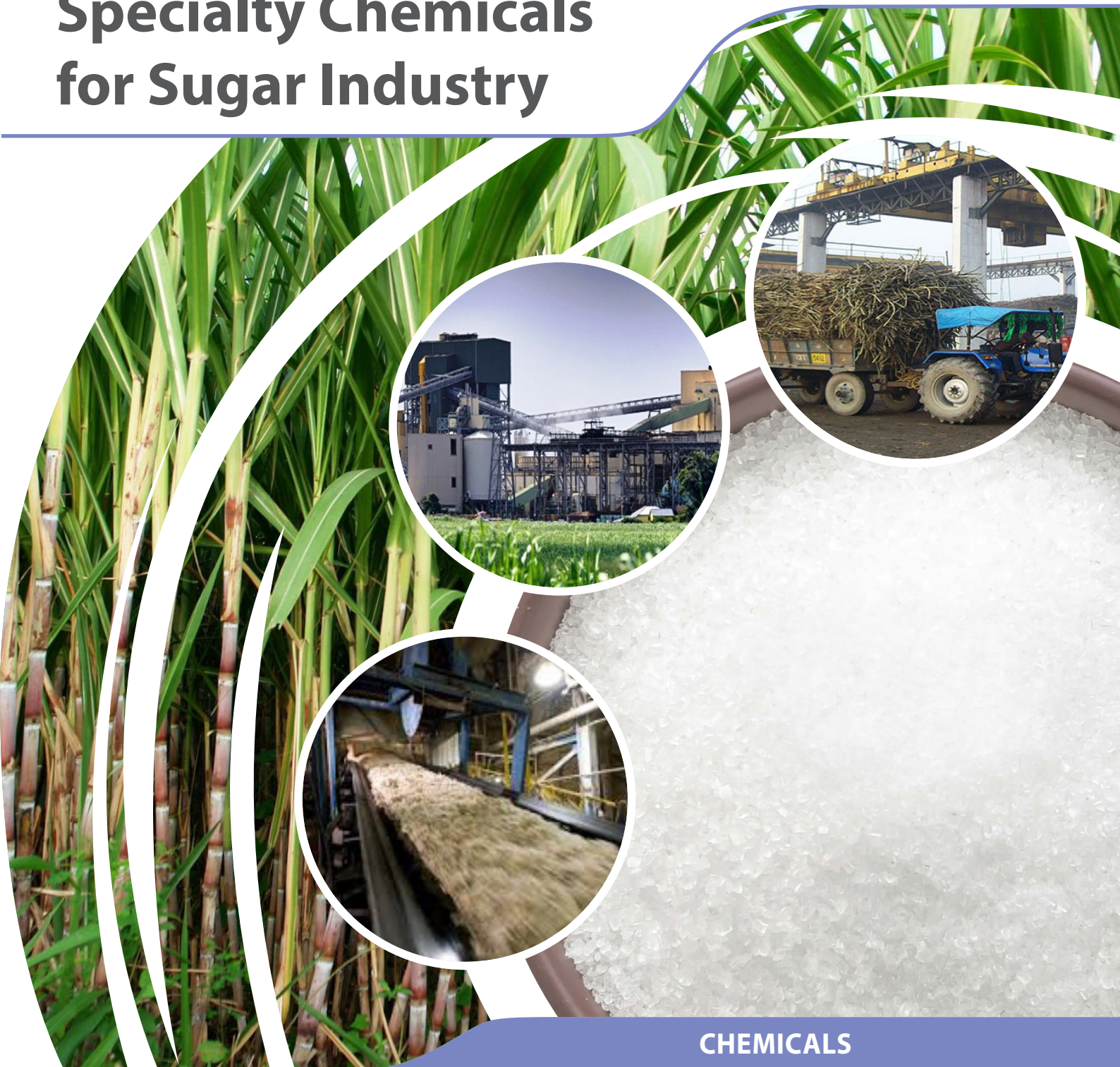


Specialty Chemicals for Sugar Industry



CHEMICALS

Thermax Offerings for Productivity Improvement in Sugar Manufacturing



IMPROVING YOUR BUSINESS IS OUR BUSINESS

Thermax's Chemical business manufactures and markets a wide range of specialty chemicals to help improve processes across a spectrum of industries through customized and cost effective solutions.

The business is Asia's leading manufacturer and exporter of ion exchange resins and is a pioneer in chemicals for water and wastewater treatment. Thermax acts as a one stop solution with entire spectrum of construction chemicals for improving, protecting and repairing concrete structures. Thermax also supplies chemicals for oil field operations and paper & pulp.

Powered by technological expertise and capabilities honed over more than four decades, the Chemical Division has a strong dealer network and serve customers across the globe.

Thermax Chemical portfolio is backed by rich R&D experience, state-of-the-art manufacturing facilities and in-depth knowledge of customer requirements. The business has built a client base in the USA, Japan, South East Asia and the Middle East.

Speciality Process Chemicals

Thermax offers a range of speciality process chemicals. Our range of products are as follows:



MILL SANITATION CHEMICALS

We have Carbamate base and Quaternary base micro biocides which is used for mill sanitation.

Benefits

- Prevents bacterial growth
- Arrests sugar inversion
- Improves sugar recovery
- Improves sanitation of mill surroundings

EVAPORATOR ANTISCALANTS

Multi-component liquid chemical inhibits scaling in evaporators and vacuum pans.

Benefits

- Improve heat transfer through clean evaporating surfaces
- Reduced scale formation
- Increased production and enhanced equipment life
- Reduction in steam consumption

MUD SETTLING AGENTS

A coagulant that separates suspended solids from sugar juice in clarifier.

Benefits

- Efficient clarification
- Improves mud filtration
- Increased throughput

VISCOSITY REDUCERS

It improves centrifugation efficiency and sugar colour.

Benefits

- Improved flowability
- Reduces boiling time
- Improved circulation

COLOUR PRECIPITANTS

Specialty polymer to improve sugar colour during clarification process.

Benefits

- Produces a superior white sugar
- Improvement in clarification efficiency
- Removal of suspended solids and colloidal particles in sugar juice



Boiler Water Treatment

Catalysed Oxygen Scavengers

- Catalysed oxygen scavengers to remove oxygen instantly thereby controlling oxygen related corrosion.
- Liquid oxygen scavenger also helps to protect condensate system from corrosion.

Scale & Corrosion Inhibitors

- Scale & corrosion inhibitors to protect boiler metallurgy and avoid unplanned shutdowns due to tube failures.

pH Boosters

- Inorganic pH boosters works as alkalinity builder and boosts pH of boiler water. Recommended in case of use of process condensate as feed water.
- Organic pH boosters is used to maintain pH of feed water & condensate water of power plant boilers to prevent corrosion.

Fuel Additive

BIOMIX™ - Combustion catalyst and corrosion inhibitor. It prevents hard deposit formation and their accumulation in boiler. BIOMIX™ reduces the destructive effect of molten ash on refractory.

Benefits:

- Reduces deposition
- Reduces Corrosion
- Reduces shutdowns

Fireside Chemical

THERMOMIX® BG - Improves heat transfer by online cleaning of the flu gas path by increasing ash fusion temperature and accelerating oxidation process. Thermomix® BG helps to protect refractory and metal from corrosive attack of fireside deposits.

Benefits:

- Ease of furnace cleaning
- Improve heat transfer
- Reduce maintenance cost



Water Treatment for Co-Generation Plant

Cooling Water Treatment

Thermax offers wide range of Chemicals for preventing corrosion and scaling in the cooling water circuits of co-generation plant.

Our offerings:

- Scale & Corrosion Inhibitors
- Bio Dispersants
- Dispersants
- Range of Biocides

We offer unique solution of using process condensate water for cooling water makeup by using chlorine di oxide treatment.

Benefits:

- Water conservation
- Reduce operating cost of ETP
- Reduce load on ETP



Online Monitoring & Automated Dosing System



We also offer online detection, monitoring & controlling system - Thermread; for the performance optimization of cooling water treatment chemicals.

Benefits:

- Ensures chemicals are fed at optimum level
- Online connectivity provides 24*7 status of water parameters
- Simple design, easy to operate and low maintenance
- Automatic blowdown control

Reverse Osmosis Membrane Treatment

Thermax offers complete range of reverse osmosis membrane treatment chemicals including:

- Antiscalants to prevent scaling on the membrane surface
- Non oxidizing biocides for controlling biological fouling
- Alkaline and acidic cleaners

Benefits:

- Reliable output
- Improved recovery
- Protects membrane from damage
- Accelerates reverse osmosis





Efficient Microbes For Effluent Treatment Plant

Efficient microbes produce enzymes and other compounds which degrade tough to degrade organic pollutants in effluent. Effluent after treatment helps to meet PCB norms.

Benefits

- COD and BOD reduction
- Rapid MLSS development
- Sludge reduction
- Low maintenance cost of ETP



Ion Exchange Resins for Sugar Decolourisation



Thermax offers specialty grade Tulsion® ion exchange resins for the sugar industry to achieve the desired color of sugar in the range of 20–40 ICUMSA units and this purified sugar is known as refined sugar.



Scheme Selection for Tulsion® Resins

Inlet Feed Colour (ICUMSA)	Stage Type	Number of Columns	Resin Configuration
< 200	One stage	One	Tulsion® A 722 MP
200 – 400	Two Stage	Two	Tulsion® A 722 MP Tulsion® A 722 MP
400 – 1000	Two stage	Two	Tulsion® A 30 MP Tulsion® A – 722 MP
1000 – 2000	Three stage	Three	Tulsion® A 30 MP Tulsion® A 30 MP Tulsion® A 722 MP



TULSION® A-722 MP

- This styrenic base resin can effectively be used at high temperature (60-80°C) that is normally encountered in a sugar refinery.
- It can generally be used for Decolourisation of sugar solutions having 200-800 ICUMSA inlet colour.
- Excellent physical properties and good regeneration efficiency

TULSION® A-30 MP

- This acrylic base resin can be used effectively at high temperature (60-80°C) for decolourisation of sugar syrup.
- Due to its acrylic matrix and high porosity, it can be used for treatment of dark coloured sugar liquors having 800 to 2000 ICUMSA inlet colour.
- Less energy costs as thermal regeneration is not required.



Quality Assured Manufacturing

Thermax is committed to develop, manufacture, deliver and apply quality Wastewater Treatment Chemicals to meet customer expectations.

Thermax Chemical Division complies with the requirements of ISO 9001 and continually improve the effectiveness of the quality management system by establishing and reviewing quality objectives.

Credentials

Thermax Chemical Division's manufacturing is accredited with ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 certifications.

Research and Development

The Division's R&D, with its state-of-the-art laboratories is at the forefront of developing new products and technologies. Our R&D is approved by the Department of Science & Technology, Government of India and collaborates with many scientific and academic institutes. Thermax delivers the next generation of customer focused technologies within our core technologies using its unique, market - based management approach.



Thermax Chemical Division

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Thermax Business Portfolio

- Chemicals
- Cooling
- Power Generation
- Air Pollution Control
- Heating
- Water and Wastewater Solutions
- Solar
- Specialised Services