



THERMAX

Chemical Division

Redefining the Pulp & Paper Industry



Georgia-Pacific

Chemicals

Technology Partner

Thermax, the engineering major headquartered in Pune, India provides solutions in areas of energy and environment. In over 75 countries around the world clients make use of Thermax's business-to-business solutions for energy efficient and eco-friendly operations: heating & cooling equipment, solar energy, turnkey power plants, systems for water & waste water management, air pollution control and performance improving chemicals.

Thermax Chemical Division

The chemical division of Thermax Limited manufactures and markets a wide range of specialty water treatment chemicals & fuel additives to help improve processes and product performance across a spectrum of industries.

Product Portfolio

- Ion Exchange Resins
- Fuel & Water Treatment Chemicals
- Oilfield Chemicals
- Paper Chemicals
- Construction Chemicals

Thermax-Georgia Pacific Paper Chemicals

Thermax in association with Georgia Pacific, USA, the pulp & paper chemical giant offers entire range of paper chemicals like:

NovaSize® AKD / ASA / EML-

Alkaline Internal sizing

NovaCote® - Surface sizing

Ambond® - Dry strength resin

Amres® - Wet strength resin

NovaCote® PC - Ready-mix coating

Maxfloc® - Cationic / Anionic

coagulants & flocculants,

Defoamers & Antifoams

Maxtreat® - Deposit control

agents & micro-biocides, Bio-

dispersants, Antiscalants, De-inking

additives, Antifoams & De-inking

Enzymes

Maxcote - Coating Chemicals

Maxlite - Colorants

Thermax-Georgia Pacific Solutions for the Paper Industry

Thermax chemicals, a flagship division of Thermax Limited has been in the business of manufacturing specialty chemicals for over three decades. Thermax in collaboration with Georgia Pacific offers unmatched service to the Asian paper industry way ahead of the existing competition.

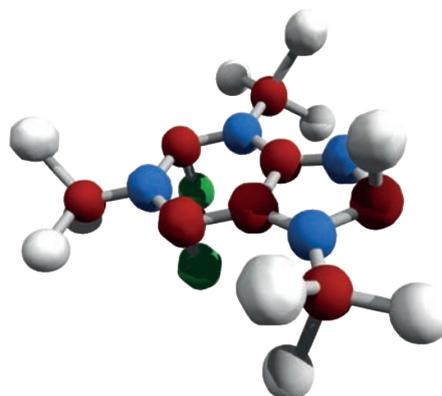
Thermax-Georgia Pacific combine offers the entire spectrum of performance paper chemicals formulated to enhance the physical attributes of the paper products from wet and dry strength resins, internal alkaline sizes, surface sizes and box board coatings to specialty products such as charge modifiers and anionic trash collectors.

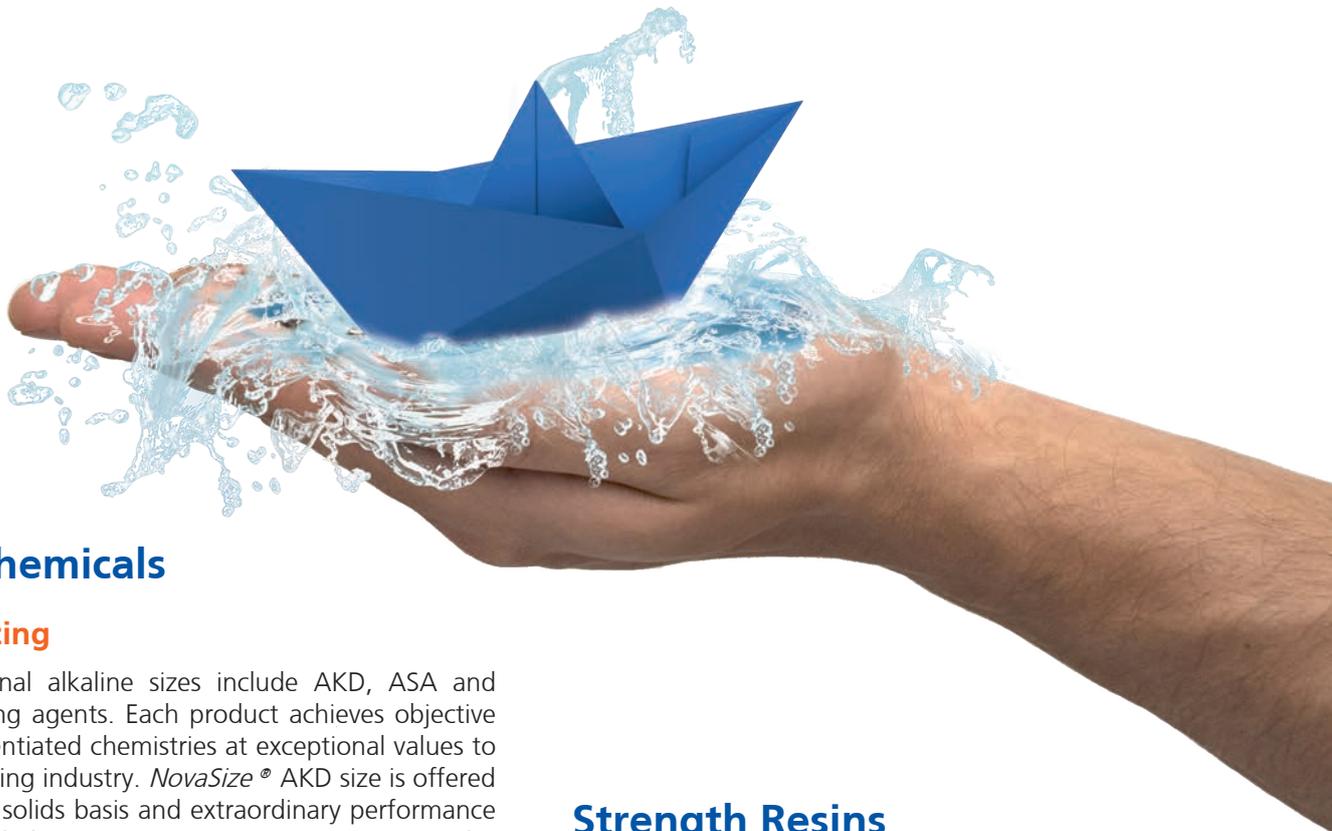
Georgia Pacific Products lines are ably supported by *Maxfloc®* range of polyelectrolytes-cationic coagulants, cationic / anionic flocculants (in powder, liquid & emulsion form) and *Maxtreat®* range of micro-biocides & deposit control formulations, antifoam and de-inking additives etc. coupled with diagnostic and value added services.

Coagulants and Flocculants

Thermax manufactures a range of coagulants and flocculants for use in the paper machine systems and their wastewater treatment plants. The *Maxfloc®* retention reagents have been specifically developed to be used as a single retention reagent system. They are also used in combination with an inorganic or organic coagulant or in a treatment system together with a micro-particle. The *Maxfloc®* range of coagulants find use as charge neutralizers of anionic trash, fixing agents, controlling the 'stickies' in the coated broke system and in combination with AKD and ASA sizes to improve fixing and cure rate.

Product Name	Characteristics	Applications
Maxfloc® 5020	Cationic Coagulant	Charge Neutralizer, Drainage Aid, Anionic trash controller, fixative
Maxfloc® 5040	High charge Cationic Coagulant	Anionic Trash Controller, Broke Treatment, White Pitch Controller
Maxfloc® 5623	Medium Charge Anionic Powder	Dewatering Aid for Belt Press, Save All, Retention Aid
Maxfloc® 5914	Low Charge Cationic Powder	Dewatering Aid, Retention and Drainage Aid
Maxfloc® 5924	Medium Charge Cationic Powder	Dewatering Aid for Belt Press, Save All, Retention Aid
Maxfloc® 5915	High molecular weight and Low cationicity polymer	Dewatering Aid for Belt Press, Save All, Retention Aid





Sizing Chemicals

Internal Sizing

Thermax internal alkaline sizes include AKD, ASA and ASA emulsifying agents. Each product achieves objective to offer differentiated chemistries at exceptional values to the paper-making industry. *NovaSize*® AKD size is offered on acceptable solids basis and extraordinary performance efficiency. Similarly *NovaSize*® ASA sizing system provides distinctive cost effectiveness.

Surface Sizing

Surface sizes (SMA, SAE chemistries) like *NovaCote*® and *Maxcote* products meet the unique needs in newsprint, linerboard, carrier board and gypsum applications.

Product Name	Characteristics	Applications
NovaSize® AKD 3016	AKD Emulsion Internal Size	Alkaline Internal sizing agent
NovaSize® ASA	ASA Reactive Size	Alkaline Internal sizing agent
NovaSize® EML 1520	Emulsifier for ASA Reactive Internal Size	Starch Modified Polymer emulsifier for ASA
Maxtreat® LS 5820	Emulsifier for ASA Reactive Internal Size	High-solids starch emulsifier for ASA
NovaCote® 2000	Low viscosity Anionic Surface Size	Copier Toner Adhesion, coating hold out and ink jet printing.
Maxcote SS 5000	Acrylic Styrene ester, copolymer-Anionic	Surface sizing agent
Maxcote SS 6000	Proprietary mixture	Surface sizing agent
NovaBond® 150	Anionic Surface Strength Product	Improves wax pick, scuff resistance, wet rub, Z directional tensile and reduces linting & dusting

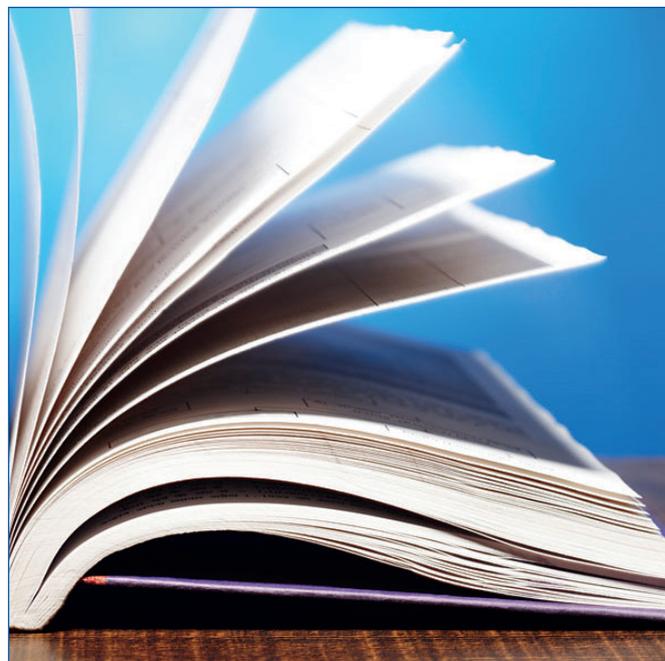
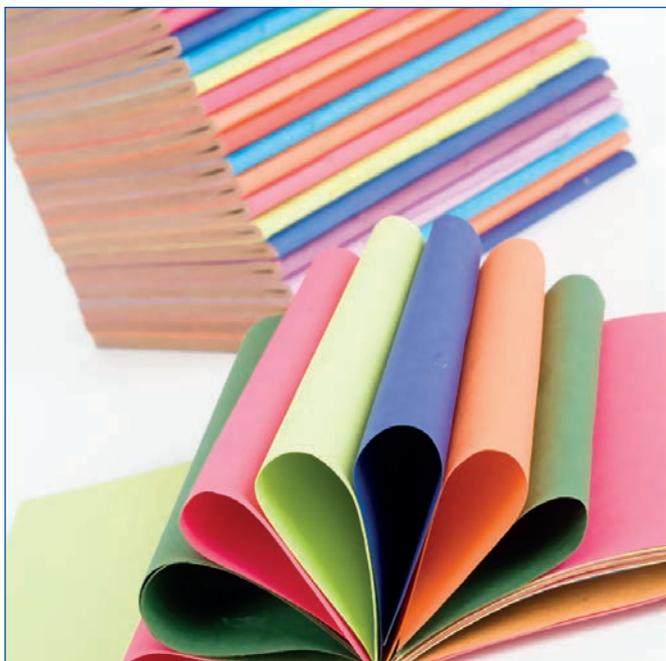
Strength Resins

Wet and Dry Strength Resins

Amres® wet strength and *Ambond*® dry strength resins, manufactured in technical collaboration with Georgia Pacific Corporation USA are engineered for paper tissue and towelling, linerboard, liquid packaging, and carrier board. Thermax also manufactures *Maxbond* series of dry strength resins specifically designed for tensile and burst strength improvement in different paper grades.

Product Name	Characteristics	Applications
Amres® 8855	General Purpose Cationic Polyamide Resin	High performance Wet Strength Resin
Ambond® 1548-8	GPAM Cationic dry strength resins	Increases dry strength properties
Maxbond C 1550	Cationic dry strength resins	Increases dry strength properties
Maxbond C 1560	Cationic dry strength resins	Increases dry strength properties
Maxbond 1500	Amphoteric dry strength resins	Increases dry strength properties





Microbiocides and Deposit Control

Deposits and their associated problems in a mill include sticky spots on rolls, plugged fabrics and felts, thin spots and holes in the sheet, breaks, poor runnability and dirt in the final product. Recycled paper which is used for paper-making introduces unique problems of controlling latexes, plastics and stickies.

Maxtreat® range of micro-biocides, dispersants, boil out chemicals are formulated, to remove build-up of slime, pitch, scale, other debris from dirty machines and process circuits.

Product Name	Characteristics	Applications
Maxtreat® 5050	QAC cationic base	Paper machine slimicide / Fungi control
Maxtreat® 5651	Broad spectrum isothiazoline	Paper machine slimicide
Maxtreat® 5655	Gluteraldehyde	Broad spectrum biocide
Maxtreat® 5304	Proprietary composition	Quick killer biocide in wide pH range
Maxtreat® 5003	Proprietary surfactant	Bio-dispersant
Maxtreat® 5004 N	Proprietary composition	Scale Inhibition
Maxtreat® 5001P	Surfactant / Detergent containing organic salt	Boil out chemical

Defoamer and Antifoamers

There is an extremely diverse set of chemical formulations, which can be effective either to prevent foam (anti-foam) or to destroy it, once it is formed (defoamer). Most foam-fighting chemicals can serve either role.

Thermax defoamers act as a dual effective agent for efficient foam control in paper manufacturing systems. Certain grades of defoamers are also used in the coating colour kitchen.

Product Name	Characteristics	Applications
Maxtreat® 5004 MDF	Proprietary composition	Paper machine defoamer
Maxtreat® MDF 5010	Proprietary Composition	Paper machine Defoamer
Maxtreat® 5777DF	Proprietary Composition	Paper machine defoamer
Maxtreat® CDF 5015	Proprietary Composition	Coating Antifoam





De-inking Chemicals

De-inking is the process of removing printing ink from waste paper so that the waste paper may be recycled. Maxtreat® surfactant based de-inking chemical as well as enzyme based de-inking chemicals are designed to remove and disperse ink from recycled furnish used in de-inking plants.

Product Name	Characteristics	Applications
Maxtreat® DI 16	Surfactant	De-inking chemical
Maxtreat® DI 25	Enzyme	De-inking enzyme
Maxtreat® DI 17	Fatty acid base	De-inking chemical
Maxtreat® DI 20	Fatty acid base	Noodles De-inking chemical

Paper Enzymes

Refining enzymes are employed for various applications in pulp & paper industry, they save energy and chemical consumption while improving the quality and performance.

Product Name	Characteristics	Applications
Maxtreat® DI 35	Enzyme	Bleaching enzyme
Maxtreat® DI 45	Enzyme	Refining enzyme
Maxtreat RE 554	Enzyme	Refining Enzyme
Maxtreat® SL 55	Enzyme	Starch Liquefaction enzyme
Maxtreat® SL 55 s	Enzyme	Higher activity Starch Liquefaction enzyme
Maxtreat PC 65	Enzyme	Pitch control enzyme



Tissue Chemicals

Thermax offers wide range of tissue chemicals which helps to improve tissue softness and operations efficiency.

Product Name	Characteristics	Applications
Maxtreat® YR 5221	Proprietary composition	Yankee Release agent
Maxtreat® YDC 5230	Proprietary surfactant	Yankee Dryer Coating Agent
Maxtreat® TS 5123	Proprietary composition	Tissue softener

Other Wet End Chemicals

Product Name	Characteristics	Applications
Maxtreat® DSC 5683	Surfactant with polymeric dispersant	Stickies control
Maxtreat® FW 5412	Proprietary composition	Felt Passivation chemical
Maxtreat® FW 5416	Proprietary composition	Felt Passivation chemical
Maxtreat® WPC 5415	Proprietary composition	Wire Passivation chemical
Maxtreat® FC 5938	Wax based	Fluff control chemical
Maxtreat® FC 5920	Starch based	Fluff control chemical



Colorants

Thermax offers a wide range of paper dyes. The dyeing of paper is done during paper manufacture by adding water soluble anionic dyes and cationic polymers to paper pulp as fixing agents and removing water from the paper pulp with the formation of dyed paper. Maxtreat® and Maxlite exhibit a wide range of paper dyes offered by Thermax in blue, violet, red, orange and green colours.

Product Name	Characteristics	Applications
Maxlite Blue	Pigment dye	Blue Dye
Maxlite Violet	Pigment dye	Violet Dye
Maxlite Brilliant Violet BL	Direct dye	Brilliant Violet Dye
Maxlite Red	Pigment dye	Red Dye
Maxlite Orange	Pigment dye	Orange Dye
Maxlite Green	Pigment dye	Green Dye
Maxlite Violet BN	Direct dye	Violet Dye

Coating

Coating is a mixture of pigments, binder, dispersing agents, rheology modifiers, coating hardeners, coating defoamers, polyvinyl alcohols, starches, biocides, etc. NovaCote® a ready-mix coating formulation manufactured under licensing agreement with Georgia Pacific Corporation USA, can be used without any other coating chemical use. A single chemical replaces the entire coating mixture. Thermax also offers acrylic binders, rheology modifiers, coating hardeners and dispersing agents.

Product Name	Characteristics	Applications
Maxtreat® PD 5510	Anionic polyacrylate	Coating dispersing agent
Maxcote ST 5020	Acrylic copolymer	Synthetic thickener
Maxcote AZC 5015	Ammonium Zirconium Carbonate	Coating hardener
Maxcote CB	Styrene acrylate	Coating binder
Maxcote CB SP	Styrene acrylate	Coating binder





Quality Assured Manufacturing

Thermax is committed to develop, manufacture, deliver and apply quality Pulp & Paper 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.

IDCP Halal Certified Products

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.

Maxfloc® & Maxtreat® are registered trade marks of Thermax Ltd. India.

Amres®, Ambond®, NovaCote®, NovaBond®, NovaSize®, Sofstrength® are registered trade marks of Georgia Pacific Corporation, USA and products of the same brands are manufactured under the license of Georgia Pacific Corporation, USA.



Our Global Network



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THERMAX

Sustainable Solutions in
Energy & Environment

Registered Office

D-13, MIDC Industrial Area,
R D Aga Road, Chinchwad, Pune 411019, India

Tel : +91 20 66122999 / 66155000

Fax : +91 20 27472049

enquiry@thermaxglobal.com

www.thermaxglobal.com

Thermax Business Portfolio

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