



FlexaTram™-HMT

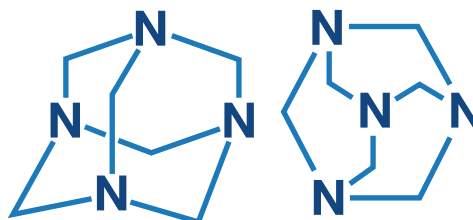
HEXAMETHYLENETETRAMINE

FlexaTram™-HMT

FlexaTram-HMT-100 and FlexaTram-HMT-200, hexamethylenetetramine, are used to synthesize chemical compounds such as resins, plastics, personal care and rubber additives. Ascend has been producing FlexaTram-HMT for over 50 years at one of its world-class facilities in Chocolate Bayou, Texas.

Also known as:

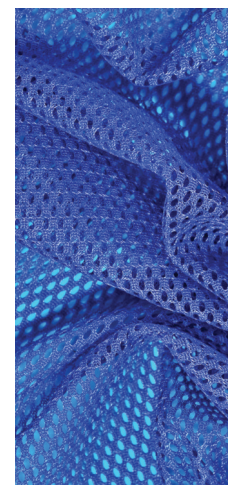
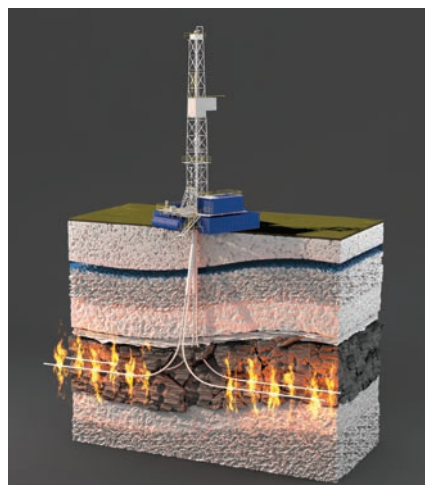
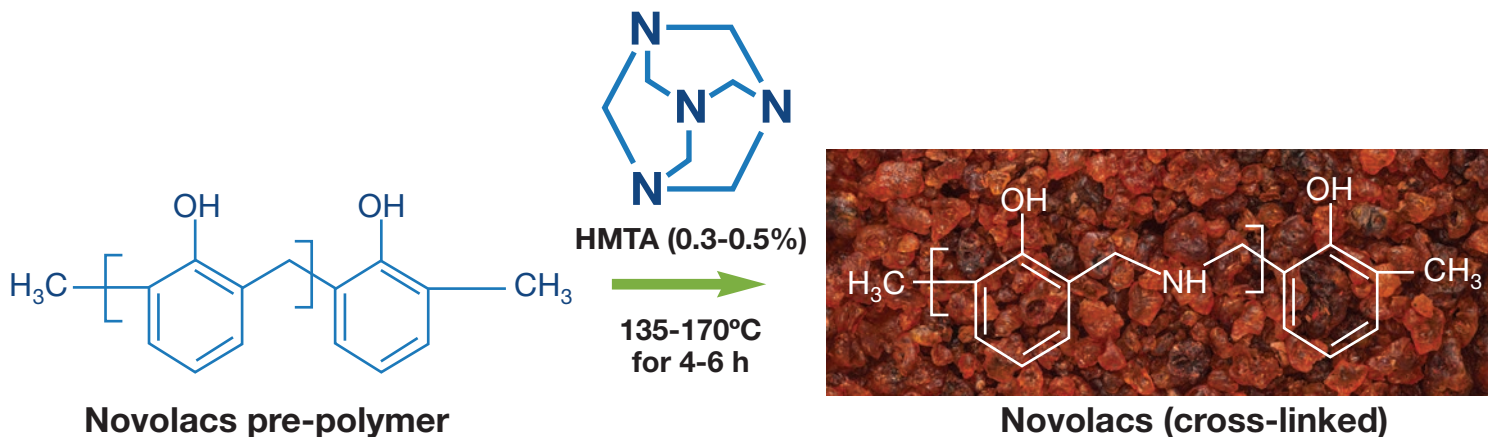
- Hexamine
- Methenamine
- Aminoform
- Urotropine



FlexaTram-HMT products are used as a catalyst in the synthesis of phenol, melamine and urea-formaldehyde based resins and as a curing agent in the preparation of novolac phenolic resin systems. These resins are versatile synthetic materials with outstanding mechanical properties, bonding performance, chemical and water resistance and flame retardancy.

FlexaTram-HMT is used in phenolic systems to make the following products:

- Foundry resins
- Abrasive products
- Proppant coatings
- Brake and clutch linings
- Non-woven textiles

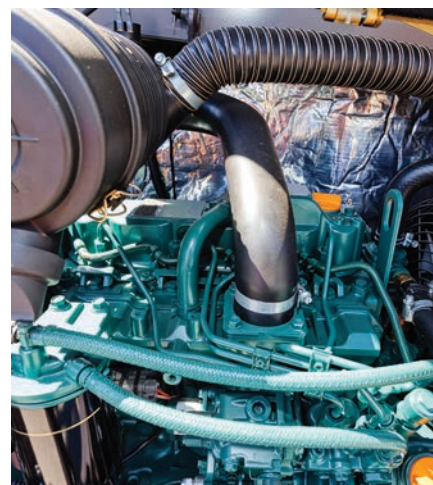


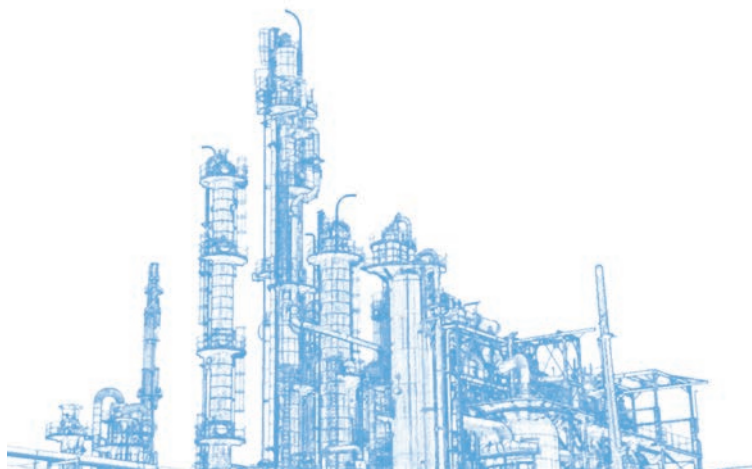
Specifications and properties

Characteristics	FlexaTram-HMT-100 (Aqueous ~32% solution)	FlexaTram-HMT-200 (Aqueous ~41% solution)
Molar mass	140.1 g/mol	140.1 g/mol
Appearance	Clear solution, no suspended particles	Colorless to slightly yellow solution
Relative density (g/cm ³)	1.00-1.10	1.00-1.15
Hexamine content (wt.%)	31-33	40-42
pH	9.5-11.5	8.0-10.0
APHA color	20 max	20 max
Ash (wt. %)	0.02% max on solid HMTA	0.02% on solid HMTA

Other uses of FlexaTram-HMT

- **Personal care:** A formaldehyde donor at use levels of 0.01-1.0 phr
 - Cosmetics, foot cream and deodorants as an antibacterial and fungicidal agent
 - Hair dye fixative as a preservative
- **Curing agent for rubber and epoxy:** Use levels of 0.5-2.5 phr
 - High-temperature accelerators with medium to long curing ranges and slow curing rates, preventing early stage rubber sagging
 - Secondary accelerators to control curing rates such as mercapto, sulphenamide, thiuram and dithiocarbamate
- **Combustion:** As a fuel additive in combustible solid fuel cubes and in RDX for the explosive industry
- **Adhesives:** In elastic glues as an adhesion promoter for direct bonding of
 - Rubber-to-fabric
 - Rubber-to-metal (steel cords)
- **Intermediate:** For the synthesis of chelating agents and other agro compounds
- **Food additives:** As a cheese preservative and fungicide for citrus fruits
- **Medical:** As a methenamine mandelate and hippurate treatment of urinary tract infections
- **Rubber:** The manufacturing of dinitrosopentamethylene-tetramine, a blowing agent for rubber





About Ascend

Headquartered in Houston, Texas, Ascend Performance Materials is one of the world's largest fully integrated producers of nylon 6,6 resin. As the world's only large-scale converter of acrylonitrile to adiponitrile, Ascend is uniquely positioned for the production of dozens of amines, acids, esters and intermediates used in a variety of end applications. Our integrated manufacturing processes allow us to produce a wide range of specialty chemicals. Ascend's specialty chemicals are used in hundreds of brand-name adhesives, coatings, cleansers and detergents. Ascend manufactures chemicals at its facilities in Alabama, Florida and Texas.

For more information on our specialty chemicals visit us at ascendmaterials.com/specialtychemicals

inspiring everyday

Disclaimer of Warranty and Liability

NOTICE: Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Ascend Performance Materials Operations LLC makes no representations or warranties as to the completeness or accuracy thereof.

Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Ascend Performance Materials Operations LLC be responsible for damages of a nature whatsoever resulting from the use of or reliance upon information or the products to which information refers. Nothing contained herein is to be construed as a recommendation to use any product, equipment or formulation in conflict with any patent, and Ascend Performance Materials Operations LLC makes no representation of warranty, express or implied, that use thereof will not infringe any patent. No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers.

© 2017 Ascend Performance Materials Operations LLC. The Ascend Performance Materials and FlexaTram marks and logos are trademarks or registered trademarks of Ascend Performance Materials Operations LLC. | Rev. 01/2017