



PRODUCT STEWARDSHIP SUMMARY

FIRSTCURE® DMPT and MHPT Accelerators

N, N-Dimethyl-para-toluidine and N-(2-Hydroxyethyl)-N-methyl-para-toluidine

DMPT: CAS# 99-97-8
EINECS No. 202-805-4
Formula: C₉H₁₃N

MHPT: CAS# 2842-44-6
EINECS No. 220-638-5
Formula: C₁₀H₁₅NO

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Introduction

FIRSTCURE DMPT Accelerator (DMPT) is Albemarle's registered trade name for N,N-dimethyl-para-toluidine. FIRSTCURE MHPT Accelerator (MHPT) is Albemarle's registered trade name for N-(2-Hydroxyethyl)-N-methyl-para-toluidine. Both products are used to promote the low temperature curing of unsaturated polyesters, vinyl esters, and acrylates. Our patented MHPT is incorporated into the polymer backbone resulting in reduced odor and extractables in the final product. Compared to conventional systems, MHPT is more reactive, less sensitive to oxygen inhibition, and exhibits minimal drift in gel time.

Description and Properties

FIRSTCURE DMPT Accelerator is a colorless to light amber liquid that tends to darken over

time. FIRSTCURE MHPT Accelerator is a white solid or tan liquid depending on storage temperature. Both products have an aromatic amine odor. The odor of MHPT is milder than that of DMPT.

Uses

Cure promoters increase the efficiency of benzoyl peroxide (BPO) initiated cure systems resulting in the rapid polymerization and gelling of resins at or below room temperature. They assist in controlling the gel time and extent of cross-linking in the finished resin.



Mine bolt adhesive is an important application that employs cure promoters such as DMPT and MHPT. Anchor bolts are drilled into rock or concrete for stabilization of mines, dams, locks, rock cuts and tie downs and are fixed



in place with resins containing cure promoter. When cured, the system produces a configuration that is stronger than the surrounding rock.

Another common use of DMPT and MHPT is to promote the cure of fiber-reinforced plastics (FRP). Examples of FRPs are bathtubs, showers, boat hulls, automobile bumper cores, pipes and tanks.

Gel coat formulators also employ cure promoters. The gel coats are applied to fiberglass car bodies, boat hulls, swimming pools, tubs and showers, cultured marble, outdoor signs and golf carts. The gel coats have several benefits in these applications including improved weatherability, flame resistance, thermal insulation, abrasion, and moisture resistance, as well as improved product appearance.

Auto body putties, industrial flooring, acrylic fingernails, cultured marble, cyanoacrylate adhesives (Super Glues), as well as anchoring and doweling adhesives contain cure promoters.

Health Information

DMPT and MHPT may cause eye and skin irritation. DMPT is harmful by inhalation and ingestion. Prolonged exposure to DMPT vapors or repeated skin exposure may affect the liver, nervous system and

blood forming systems and may cause fatigue, loss of appetite, headache, and dizziness.

Please consult the product Material Safety Data Sheet for recommended personal protective equipment and further information.

Exposure Potential

The choice of protective equipment depends on the degree of possible exposure. Respiratory protection is recommended when spraying DMPT or MHPT. Although MHPT is much safer than DMPT special care must be taken in spraying applications or applications where there is a potential for breathing vapors.



Use only in well ventilated areas and use only with appropriate personal protective equipment.

Please consult the product Material Safety Data Sheet for recommended personal protective equipment and further information.

Environmental Information

DMPT can sometimes be used at 20% of the level required for commonly employed promoters. This results in lower residual promoter in the final resin and reduced risk to the environment. MHPT reacts with other system components and is consumed during the curing process. MHPT, therefore, has minimal impact on the environment when properly used.

Neither DMPT nor MHPT are regulated by the US EPA as hazardous wastes. If spilled, waste containing uncured DMPT or MHPT should be disposed of according to good waste-management practices and in compliance with applicable local, state, and federal regulations.

Physical Hazards

Both DMPT and MHPT are chemically stable liquids, but can attack some forms of plastics, elastomers and coatings.

DMPT also reacts violently with strong

oxidizers such as sulfuric acid and tetranitromethane and should, therefore, be stored apart from such materials. They are combustible liquids and should be stored away from sources of ignition.

Derivation/Manufacturing

Albemarle Corporation manufactures DMPT and MHPT accelerators at its Tyrone, Pennsylvania manufacturing facility.

Regulatory Information

FIRSTCURE MHPT Accelerator is not regulated for transportation, but FIRSTCURE DMPT Accelerator has a DOT/IMO hazard class of 6.1 (toxic liquid).

The Emergency Planning and Community Right-to-Know Act (also known as SARA Title III or EPCRA) classifies DMPT as an immediate (acute) health hazard and a fire hazard. Under the same Act, MHPT is considered an immediate (acute) health hazard.

The Canadian Workplace Hazardous Material Information System (WHMIS) requires that MHPT be labeled as a Class D material in Division 2B.

Both FIRSTCURE DMPT Accelerator and FIRSTCURE MHPT Accelerator each have been pre-registered under the European Community Regulation “REACH”.

Product Stewardship

Albemarle Corporation is committed to manage FIRSTCURE MHPT Accelerator and FIRSTCURE DMPT Accelerator so that they can be safely used by our customers. Our



relationships with our customers encourage communication about safety and environmental stewardship, and we work with them to minimize the risks of personnel exposure and spills.

Albemarle is staffed and organized to investigate and provide advice regarding appropriate corrective actions if such incidents occur.



Conclusion

DMPT and MHPT curatives are valuable chemical compounds that are used to manufacture thousands of important products worldwide. They have the benefit of working under adverse conditions such as cold, wet environments. These attributes

are particularly important for safety related applications such as anchor bolts. Lower use rates and lower toxicity are significant advantage over other curatives. In addition, MHPT has lower odor and is consumed during polymerization.

As a result, FIRSTCURE DMPT Accelerator and FIRSTCURE MHPT Accelerator help manufacturers produce and sell dependable, better-performing products worldwide. We use many of these products in our daily lives.

Note

This document provides general information about FIRSTCURE DMPT

Accelerator and FIRSTCURE MHPT Accelerator and does not supplant or replace required regulatory and/or legal communication documents, nor is it intended to provide an in-depth discussion of health and safety information. Always

consult the product’s material safety data sheet, product label and technical data sheet before using the chemical.

References

Albemarle Firstcure DMPT Accelerator Product Data Sheet

SC-0001, September 2001

Albemarle Firstcure MHPT Accelerator Product Data Sheet

SC-0006, September 2001

Albemarle Firstcure Products Technical Bulletin No. 1

FIRSTCURE Promoters: Eliminating Gel-Time Drift in Vinyl Ester Resins

AC-0268, November 2002

Albemarle FIRSTCURE Technical Bulletin

MHPT Amine Cure Promoter Compared to DMPT and DMA in BPO Systems

SC-0061, August 2006

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Albemarle MSDS Number: 93.0.31

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M.J. Wilhelm, Cure Promoters

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How to Contact Us

You can write us for additional information at: Albemarle Corporation
Responsible Care Coordinator
451 Florida Street
Baton Rouge, LA 70801-1765

Or e-mail us at: HSE@albemarle.com



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