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Introduction
ETHACURE 100 curative (E-100) is Albemarle’s registered trade name for diethyltoluenediamine (DETDA), a compound used to make strong, flexible materials called thermoset polymers that are used in coatings, moldings, cast polyurethane, polyurea, and epoxy objects and a multitude of items such as automotive fenders and bumpers, jet ski parts, wheels, concrete coatings for high speed rail, and composite pipes and laminates.

Because it reacts with other ingredients as it cures during the manufacturing process, DETDA is not present when these products are sold and used.

Without E-100 many products could be more difficult, expensive or hazardous to make.

Description and Properties
ETHACURE 100 curative is a clear light-colored liquid.

It darkens when exposed to air. The product is shipped in nitrogen padded containers to prevent darkening. It has a relatively low vapor pressure at room temperature, so it typically gives off no detectable fumes or vapors. E100 is slightly heavier than water and is slightly soluble in water.

Uses
ETHACURE 100 curative is a chain-extender or cross-linker component in several polymer systems applications. Elastomers get their strength and flexibility from the chain-like molecular structure that ETHACURE 100 curative helps to create. The production process entails mixing the
rubber. Small wheels for roller blades and skateboards are examples. Prototype parts and molds for short-run production are often made this way because the process is economical and easy to control.

Another common use for E-100 is in curing epoxy resins in filament winding and casting. Winding resins are impregnated fibers that are “wound” in a precise pattern that produces structures such as pressure vessels that are stronger than steel at much lighter weights. Fiberglass and carbon fiber are typical reinforcing fibers. Products resulting from this process include, chemical storage tanks, pipelines, gas cylinders and firefighter’s breathing tanks, thermal and chemical insulation, automotive bodies, sailboats, modern bicycles and motorcycles and other consumer goods such as laptops, tripods, fishing rods, racquet frames, hockey sticks, surfboards, and golf clubs.

ETHACURE 100 cured cast elastomers are hard and durable and can produce rollers and wheels that are more resistant to abrasion than energy costs during manufacturing and extends the use of the product in spray applications into the winter months. ETHACURE 100 curative is a liquid, so it does not require melting which is an important handling advantage. It does not produce toxic dust, fumes or vapors. These beneficial properties lessen the potential for worker exposure.

Health Information
ETHACURE 100 is considered to have a low to moderate acute toxicity, which means it is not considered to be a poison or corrosive material. Because it has a low vapor pressure, E-100 is not expected to be hazardous by inhalation during normal use in its liquid form. E-100 may cause eye irritation. It is harmful if swallowed and in contact with skin. Prolonged exposure to E-100 may cause serious health effects involving the pancreas if ingested.

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

Exposure Potential
Severe eye irritation caused by accidental contact with the eye, is the most likely serious problem a worker may encounter with this product. Good industrial hygiene
Physical Hazards

ETHACURE 100 is a chemically stable liquid. When exposed to air, the product will darken and absorb water. The color of the product does not affect its performance as a curative. E-100 should be stored away from strong acids and strong oxidizing agents.

Derivation/manufacturing

Albemarle Corporation manufactures ETHACURE 100 at its Pasadena, Texas facility.

Regulatory Information

ETHACURE 100 Curative is not regulated for transportation in the US, but in Europe it is regulated for transport purposes by Road/Rail (ADR) and AIR (IATA) as UN 3082, class 9, Environmentally hazardous substance liquid, N.O.S. (Diethyltoluenediamine), Packing group III.

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

E-100 (DETDA) has been pre-registered under the European Community Regulation “REACH” by Albemarle Europe SPRL acting as the importer.

Product Stewardship

Albemarle Corporation is committed to manage ETHACURE 100 Curative so that it 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
ETHACURE 100 curative is a valuable chemical compound that is used to manufacture thousands of important products worldwide. It replaces solid materials that are more difficult to handle safely and often require energy intensive heating prior to use. As a result, ETHACURE 100 curative helps manufacturers produce and sell dependable, better-performing products worldwide. Many of these products help us live and work more comfortably while using less energy, and help us do so while protecting ourselves and our environment from harmful emissions.

Note
This document provides general information about ETHACURE 100 Curative 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 ETHACURE® 100 Curative Product Data Sheet
SC-7003, September 2007

Albemarle ETHACURE® 100 Curative Product Brochure
SC-7003, September 1999

Albemarle Safe Handling and Storage Bulletin – DETDA, ETHACURE® 100 Curative, ETHACURE® 100LC Curative
SC-7013, October 2001

Albemarle ETHACURE® Curatives for Polyurea and Polyurethane Brochure
ALB1058, November 2008

Albemarle ETHACURE® Curatives A Convenient Liquid For all Urethane Applications Brochure
SC-7011, July 2000

Albemarle ETHACURE® Curatives Convenient, Pourable Curing Agents for Epoxies Brochure
SC-7012, June 2001

Albemarle Europe SPRL MSDS
Issue Date: 07/27/07, Product Name ETHACURE 100

Albemarle Corporation MSDS
Issue Date: 03/12/2009, Product Name ETHACURE 100 Curing Agent; DETDA

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