

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	<b>Dissolvine® DZ-P</b>
<b>USP Name</b>	Pentetic acid
<b>Chemical Name</b>	Diethylenetriaminepentaacetic acid
<b>Synonym(s)</b>	Glycine, N,N-bis[2-[bis(carboxymethyl)amino]ethyl]- / DTPA
<b>Product Use</b>	Chelating agent
<b>Manufacturer / Supplier</b>	Akzo Nobel Functional Chemicals LLC Chelates Americas 525 West Van Buren St., Chicago, IL 60607 Tel. 1-800-906-7979 or 1-312-544-7000 <a href="http://www.dissolvine.com">www.dissolvine.com</a>

### Emergency Telephone Numbers

<b>CHEMICAL EMERGENCY</b> (Spill, Leak, Fire, Exposure or Accident)	CHEMTREC (24-hr)	(800) 424-9300 (Toll-free in the U.S., Canada, and the U.S. Virgin Islands) (703) 527-3887 (For calls originating elsewhere / collect calls are accepted)
	CANUTEC (Canada)	(613) 996-6666
<b>MEDICAL / HANDLING EMERGENCIES</b>		(914) 693-6946 [AkzoNobel – USA]

## 2. HAZARDS IDENTIFICATION

<b>EMERGENCY OVERVIEW</b>	<i>This material is considered hazardous by the OSHA Hazard Communication Standard [29 CFR 1910.1200]</i>
<b>WARNING !</b>	<ul style="list-style-type: none"><li>▪ <b>Harmful if inhaled.</b></li><li>▪ <b>May cause eyes and respiratory tract irritation.</b></li><li>▪ <b>Possible Development Hazard – Contains material that may adversely affect the developing fetus based on animal data.</b></li></ul>
<b>Appearance and odor</b>	Odorless, free-flowing white microgranular powder at 25°C (77°F)

### **POTENTIAL HEALTH EFFECTS** [See Section 11 for additional information]

<b>Primary Route(s) of Exposure</b>	Eye contact, skin contact and inhalation
<b>Acute Exposure</b>	<b>Inhalation:</b> Exposure to an excessive concentration of dust may cause respiratory tract discomfort and/or mild irritation. <b>Skin Contact:</b> Brief skin contact is not expected to cause irritation. However, repeated or prolonged contact may cause irritation. <b>Eye Contact:</b> Eye contact may cause slight irritation. <b>Ingestion:</b> This product has a low order of acute toxicity.
<b>Carcinogenicity</b>	This product and its components are not listed as known carcinogens or potential carcinogens by <b>IARC</b> (International Agency for Research on Cancer), <b>ACGIH</b> (American Conference of Governmental Industrial Hygienists), <b>NTP</b> (National Toxicology Program), <b>OSHA</b> (U.S. Occupational Safety & Health Administration) and <b>EPA</b> (U.S. Environmental protection Agency).
<b>Chronic Effect / Developmental Toxicity</b>	May adversely affect the developing fetus, based on animal data.

## 2. HAZARDS IDENTIFICATION (CONTINUED)

**Medical Conditions Aggravated by Exposure** Zinc deficiency may be aggravated by systemic exposure to DTPA and its sodium salts.

**POTENTIAL ENVIRONMENTAL EFFECTS** [See Section 12 for additional information]

**Aquatic Toxicity** This product is not expected to be harmful to aquatic life, based on available data with related materials.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS	CAS Number	% (w/w)
DTPA	67-43-6	99 – 100

## 4. FIRST AID MEASURES

**Inhalation** Dust may be irritating to the respiratory tract and cause symptoms of bronchitis. Remove victim to fresh air. If irritation occurs or if breathing becomes difficult, get medical attention.

**Skin Contact** Remove contaminated clothing, shoes and equipment. Wash all affected areas with soap and plenty of water. Wash contaminated clothing and shoes before reuse. Get medical attention if irritation occurs or persists.

**Eye Contact** Flush eyes with large quantities of running water for a minimum of 15 minutes. If the victim is wearing contact lenses, remove them. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention.

**Ingestion** ONLY induce vomiting at the instructions of a physician. If victim is conscious, rinse mouth and give water to drink. Never give anything by mouth to an unconscious person. Get medical attention if health effects occur.

**Note to Physician** Attending physician should treat exposed patients symptomatically.

## 5. FIRE FIGHTING MEASURES

**Flammable Properties** Not flammable or combustible

**Extinguishing Media** Use water fog or spray, dry chemical, foam or carbon dioxide extinguishing agents.

**Fire Fighting Procedures** As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate all non-essential personnel from the fire area. Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing.

**Fire & Explosion Hazards** This product is not defined as flammable or combustible. However, potential for dust explosion may exist. Depending upon conditions, dusts may be sensitive to static discharge. Avoid possibility of dry powder with friction causing static electricity in presence of flammables. (See NFPA-77, Chap. 6)

**Hazardous Combustion Products** Thermal decomposition products may release toxic and/or hazardous fumes and gases, including nitrogen oxides and carbon oxides.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions** All personnel involved in spill cleanup should avoid skin and eye contact by wearing appropriate personal protective equipment.

## 6. ACCIDENTAL RELEASE MEASURES (CONTINUED)

<b>Methods for Containment</b>	Safely stop source of spill. Restrict non-essential personnel from area.
<b>Environmental Precautions</b>	Collect as much as possible in a clean container for reuse (if not contaminated) or disposal (if contaminated).
<b>Methods for Clean-up</b>	Sweep up spilled solid material, being careful not to create dust. Return sweepings to stock or, if contaminated, place into a chemical waste container for disposal according to local, state and/or federal regulations. Then flush area with water. CAUTION – The spill area may be slippery.
<b>Other Information</b>	See also Section 13 for disposal information.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Avoid inhalation of dust as well as prolonged and/or repeated skin and eye contact. Avoid contact during pregnancy or while nursing. Wash hands and contaminated skin thoroughly after handling. Do not eat, drink or smoke when handling this product. Use personal protective equipment as required (see section 8).
<b>Storage</b>	Keep containers closed and dry. Protect product from moisture and wet air. This material is suitable for any general chemical storage area. Isolate from incompatible materials such as strong oxidizing agents. Store in PVC, PE, stainless steel or bituminized tanks. Avoid contact with aluminum, copper, copper alloys, nickel and zinc.
<b>Recommended Storage Temperature</b>	Store in sealed or original containers in a cool and dry place at ambient temperatures (below 77°F / 25°C).
<b>General Comments</b>	Containers should not be opened until ready for use. It is recommended that products be retested if stored for more than 3 years.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Exposure Guidelines</b>	<p>Exposure to this product should be controlled below limits established for :</p> <ul style="list-style-type: none"><li>Particulates Not Otherwise Classified (PNOC): 15 mg/m<sup>3</sup> (total dust) ; 5 mg/m<sup>3</sup> (respirable fraction) / OSHA PEL-TWA</li></ul> <p>[Ref: ACGIH Guide to Occupational Exposure Values, 2011 Edition]</p> <p>PEL: Permissible Exposure Limit TWA: Time-Weighted Average OSHA: Occupational Safety and Health Administration</p>
<b>Engineering Controls &amp; Ventilation</b>	Special ventilation is usually not required under normal use conditions. Ensure that existing ventilation is sufficient to prevent the circulation and/or accumulation of dust in the air as well as the formation of explosive dust-air mixture.
<b>Personal Protective Equipment (PPE)</b>	
<b>Respiratory</b>	Use of respiratory protection is generally not required. However, if use conditions generate dust and adequate ventilation (e.g., outdoor or well-ventilated area) is not available, use a NIOSH-approved half-mask, air purifying respirator with dust filter to reduce potential for inhalation exposure. Where exposure potential necessitates a higher level of protection, use a NIOSH-approved, positive-pressure/pressure-demand, air-supplied respirator. When using respirator cartridges or canisters, they must be changed frequently (following each use or at the end of the work shift) to assure breakthrough exposure does not occur.
<b>Skin</b>	Skin contact with the product should be minimized or prevented through the use of suitable protective clothing, gloves and footwear selected according to use condition exposure potential. For permanent (>8 hours) full contact use, 100% Viton gloves are recommended.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (CONTINUED)

<b>Eyes/Face</b>	Since eye contact may cause irritation, indirect-vented dust-tight chemical goggles and/or a face shield should be worn when handling this product.
<b>Hygiene Measures</b>	All food and smoking materials should be kept in a separate area away from the storage/use location. Eating, drinking and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, drinking and smoking, hands and face should be thoroughly washed.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

<b>Form</b>	free-flowing microgranular powder
<b>Color</b>	white
<b>Odor</b>	odorless
<b>Boiling Point</b>	not applicable
<b>Bulk Density</b>	~ 750 kg/m <sup>3</sup>
<b>Evaporation Rate</b> (Butyl Acetate=1)	not determined
<b>Melting Point</b>	decomposes prior to melting
<b>Odor Threshold</b>	not determined
<b>pH</b>	2-3 (saturated solution)
<b>Partition Coefficient</b> (n-octanol/water)	Log P <sub>ow</sub> < 0
<b>Solubility in Water</b>	~ 5 g/L at 20°C/68°F
<b>Solubility in Other Solvents</b>	not determined
<b>Specific Gravity</b>	not applicable
<b>Vapor Density</b> (Air = 1)	not applicable
<b>Vapor Pressure</b>	not applicable
<b>Viscosity</b>	not applicable
<b>Volatiles</b> (% by weight)	not determined
<b>Other</b>	none available
<b>Flammability</b>	not flammable or combustible
<b>Flash Point</b> (Method)	not applicable
<b>Upper Flammable Limit</b> (% by volume)	not applicable
<b>Lower Flammable Limit</b> (% by volume)	not applicable
<b>Auto-Ignition Temperature</b>	>200°C (>392°F) / glowing temperature of 5 mm product layer
<b>Lower Explosion Limit</b>	≥ 40 g/m <sup>3</sup>

< : less than    > : greater than    ~ : approximately

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	This product is stable under recommended storage and handling conditions (see section 7). It is not self-reactive and is not sensitive to physical impact.
<b>Incompatible Materials</b>	This product is incompatible with strong oxidizers.

## 10. STABILITY AND REACTIVITY (CONTINUED)

<b>Conditions to Avoid</b>	Avoid contact with aluminum, nickel, zinc, copper and copper alloys. Aqueous solution in contact with aluminum evolves hydrogen. Do not expose product to elevated temperatures for extended periods of time. Product layer on hot surface might cause glowing or auto-ignition.
<b>Hazardous Decomposition Products</b>	Under fire conditions the product may support combustion and decomposes to give off carbon oxides fumes (CO, CO <sub>2</sub> ), nitrogen oxides and water vapor.
<b>Possibility of Hazardous Reactions</b>	Hazardous polymerization is not expected to occur under normal temperatures and pressures.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute Toxicity</b> (Oral / Dermal / Inhalation)	<b>DTPA</b> Oral : LD <sub>50</sub> > 2000 mg/kg <b>Related product(s)</b> <b>Pentapotassium DTPA:</b> Dermal LD <sub>50</sub> > 2000 mg/kg <b>Disodium EDTA:</b> Inhalation : 4h LC <sub>50</sub> = 1000-5000 mg/m <sup>3</sup>
<b>Irritation</b> (Skin / Eyes / Respiratory)	A 40% solution of Pentasodium DTPA was not irritating to rabbit skin after a 4-hour exposure. It may be irritating to the respiratory tract (based on acute inhalation test with similar product). A 40% solution of Pentasodium DTPA was slightly irritating to rabbit eyes. This product is irritating to the respiratory tract.
<b>Chronic Toxicity</b> (Oral / Dermal / Inhalation)	No data available for this product. The following read-across data is available: NOAEL = 75 mg/kg (28-day oral study with Pentapotassium DTPA).
<b>Sensitization</b>	A related product containing 40% Pentasodium DTPA was not sensitizing to animal skin.
<b>Carcinogenicity</b>	This product does not contain any carcinogens or potential carcinogens as listed by IARC, NTP, ACGIH or OSHA.
<b>Mutagenicity</b>	DTPA is not expected to be mutagenic, based on the Ames Assay and the Chromosomal Aberration Test with the related product Pentapotassium DTPA.
<b>Reproductive Toxicity</b>	The following data is available for a related product Pentasodium DTPA (Na <sub>5</sub> DTPA): "A maternally non-toxic dose (400 mg/kg) of a test article with 40% Na <sub>5</sub> DTPA, administered orally to pregnant rats, caused a significant increase in skeletal retardations in the developing fetuses. In the presence of maternal toxicity, a dose of 1000 mg/kg caused a statistically significant increase in skeletal malformations, variations, and retardations in rat fetuses. These effects may be due to zinc deficiency caused by chelation of zinc by Na <sub>5</sub> DTPA." The NOAEL (for developmental effects) is 100 mg/kg.
<b>Other Effects</b>	None known.
<b>Target Organs</b>	Eyes, kidneys, bladder and reproductive system (impaired fetal development).

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	The following data is available for several related DTPA-based products: Fish (bluegill/rainbow trout): 96h LC <sub>50</sub> > 500 mg/L ; Fish (zebra fish) 28-day NOEC = 127 mg/L Brown shrimp (crangon crangon): 96h LC <sub>50</sub> > 1000 mg/L Daphnia: 48h EC <sub>50</sub> = 310 mg/L ; 18-day NOEC = 64 mg/L Algae: NOEC = 600 mg/L Bacteria: Respiration inhibition (23%) = 1280 mg/L
--------------------	--

## 12. ECOLOGICAL INFORMATION (CONTINUED)

<b>Biodegradation</b>	Not readily biodegradable. Increasing the sludge age or increasing the pH resulted in some degradation.  The substance is hydrolytically stable in water but is susceptible to photodegradation in water. The substance will react with hydroxyl radicals in the atmosphere with an estimated half-life of 0.06 days (less than 2 hours).
<b>Bioaccumulation</b>	Bioaccumulation is not expected due to the substance's high water solubility. If released to water, the substance will tend to remain in the water compartment. The substance has a low potential for adsorption to soil or sediments or bioaccumulation in aquatic organisms.
<b>Chemical Fate</b>	The substance is not expected to enter the atmosphere significantly due to its high water solubility. C.O.D. is approximately 900 mg/g.
<b>Other Information</b>	No adsorption expected onto soil due to ionic structure. The test substance will preferably distribute into the water compartment and not evaporate from the water surface.

## 13. DISPOSAL CONSIDERATIONS

<b>Waste Disposal</b>	In its unused condition, this product is not considered to be a RCRA-defined hazardous waste by characteristics or listings. It is the responsibility of the waste generator to evaluate whether his wastes are hazardous by characteristic or listing. Dispose in accordance with all local, state and federal regulations. NOTE – State and local regulations may be more stringent than federal regulations.
<b>Container Disposal</b>	Containers should be cleaned of residual product before disposal or return. Since emptied containers retain product residue, follow label warnings even after container is emptied. Empty containers should be disposed of or shipped in accordance with all applicable laws and regulations.

## 14. TRANSPORT INFORMATION

<b>Shipping Information</b>	This product is <b>not regulated</b> as a hazardous substance for transport.
<b>Labels</b>	No transport label required.
<b>Emergency Response Guidebook (2008 ERG)</b>	Not applicable
<b>Environmentally Hazardous Substances</b> [49 CFR 172.101, Appendix A]	None.

## 15. REGULATORY INFORMATION

**Regulatory Lists / Inventories:** The components are subject to the following regulatory lists and inventories:

Substance Name	CAA	CERCLA	IARC	US STATE RIGHT-TO-KNOW LISTS	CA PROP 65	SARA
DTPA	N/R	N/R	N/R	N/R	N/R	N/R



## 15. REGULATORY INFORMATION (CONTINUED)

### National Chemical Inventories Status:

Substance Name	US TSCA	Canada		EU EINECS	Australia AICS	New Zealand NZIoC	Japan ENCS	Korea KECI	Philippines PICCS	China IECSC
		DSL	NDSL							
DTPA	X	X		X	X	X	X	X	X	X

#### CANADA – WHMIS (Workplace Hazardous Materials Information System)

#### Not controlled

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

#### Other Regulatory Information

None.

## 16. OTHER INFORMATION

#### HMIS Hazard Rating

**Health: 1 / Flammability: 1 / Physical Hazard: 0 / Other: none**  
[0 – Minimal / 1 – Slight / 2 – Moderate / 3 – High / 4 – Extreme / \* - Chronic Health Hazard (see Section 11)]

#### NFPA Hazard Rating

**Health: 1 / Fire: 1 / Instability: 0 / Other: None**  
[0 – Minimal / 1 – Slight / 2 – Moderate / 3 – High / 4 – Extreme]

#### Trademark

Dissolvine® is a registered trademark of Akzo Nobel Chemicals B.V.

#### Date of Issue / Revision

January 16, 2012

#### Revision #

1.0

#### Changes

All sections / Format / Product Name  
Supersedes and replaces previous MSDS for Dissolvine DZ USP

#### Prepared by

Akzo Nobel Services Inc. (Regulatory Affairs Americas / HSE Business Support)

#### Technical Information Contact

Akzo Nobel Functional Chemicals, Chelates Americas, 1-800-906-7979

#### Legend / Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CA LIST	California – Directors List of Hazardous Substances
CA PROP 65	California Proposition 65
CAA	Clean Air Act, Section 112
CERCLA	CERCLA Hazardous Substances
DSL	Domestic Substances List – Canada
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan Existing and New Chemical Substances
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer – Carcinogens – Groups 1, 2A or 2B
IECSC	China – Inventory of Existing Chemical Substances
IL LIST	Illinois Toxic Substances Disclosure to Employees Act
KECI	Korea Existing Chemicals Inventory
LA LIST	Louisiana Right-to-Know Reporting List
LOAEC	Lowest Observed Adverse Effect Concentration
MA LIST	Massachusetts Right-To-Know Substance List
MN LIST	Minnesota – Hazardous Substance List
NDSL	Non-Domestic Substances List – Canada
NFPA	National Fire Protection Association
NJ R-T-K	New Jersey Right-To-Know Hazard List
NOAEL	No Observed Adverse Effect level
NOEC	No Observed Effect Concentration
N/R	Non Regulated
NTP	National Toxicology Program (USA)
NZIoC	New Zealand Inventory of Chemicals



## 16. OTHER INFORMATION (CONTINUED)

OSHA	Occupational Safety and Health Administration (USA)
PA LIST	Pennsylvania Hazardous Substance List
PICCS	Philippines Inventory of Chemicals and Chemical Substances
RI LIST	Rhode Island – Hazardous Substance List
SARA	SARA Title III, Section 302 / 313
TSCA	Toxic Substances Control Act – USA
X	Listed and/or Regulated

### ***Disclaimer***

The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. The user must determine the appropriate measures that need to be implemented for the use and handling of this product in the context of the user's operations and use of this product. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old, call to make certain that this sheet is current. No warranty is made as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. User must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. Nothing contained herein shall be construed as granting or extending any license under any patent.

[00707\_061108]