

# **SAFETY DATA SHEET**

**GHS** 

United States English (US)

## Section 1. Product and company identification

Product name VANOX® 945 In case of emergency

Code 53682 1-203-853-1400

Supplier/Manufacturer Vanderbilt Chemicals, LLC Chemtrec: 1-800-424-9300

Outside U.S.

Vanderbilt Chemicals, LLC

30 Winfield Street

Norwalk, CT 06855

Outside US: +1-703-527-3887

Chemical name

Mixture of hindered phenol, alkylated diphenylamines and phenothiazine.

Synonym Not available.

Material uses Antioxidant.

Product type Liquid.

### Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard

(29 CFR 1910.1200).

Classification of the TOXIC TO REPRODUCTION - Category 2

substance or mixture SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

**GHS label elements** 

Hazard pictograms



Signal word Warning

**Hazard statements** Suspected of damaging fertility or the unborn child.

May cause damage to organs through prolonged or repeated exposure. (haematopoietic

system)

Precautionary statements

Prevention Obtain special instructions before use. Do not handle until all safety precautions have

been read and understood. Wear protective gloves: > 8 hours (breakthrough time): neoprene. Wear protective clothing: Recommended: lab coat. Wear eye or face

protection: Recommended: splash goggles. Do not breathe vapor.

**Response** IF exposed or concerned: Get medical advice or attention.

Storage Store locked up.

Disposal Dispose of contents and container in accordance with all local, regional, national and

international regulations.

Hazards not otherwise

classified

None known.

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## Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	CAS number	% by weight
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	68411-46-1	60 - 70
tetrakis(methylene(3,5-di-t-butyl-4-hydroxyhydrocinnamate))methane	6683-19-8	20 - 25
petroleum process oil, <3.0% DMSO extractable material	64742-52-5	9
phenothiazine	92-84-2	1
triisodecyl phosphite	25448-25-3	<1
diphenylamine	122-39-4	0.6 - 0.7

Occupational exposure limits, if available, are listed in Section 8.

### Section 4. First aid measures

#### **Description of necessary first aid measures**

**Eye contact** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower

eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10

minutes. Get medical attention following exposure or if feeling unwell.

**Inhalation** Remove victim to fresh air and keep at rest in a position comfortable for breathing. If

not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may

need to be kept under medical surveillance for 48 hours.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and

shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing

before reuse. Clean shoes thoroughly before reuse.

**Ingestion** Wash out mouth with water. Remove dentures if any. If material has been swallowed

and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing

such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

Eye contactNo known significant effects or critical hazards.InhalationNo known significant effects or critical hazards.Skin contactNo known significant effects or critical hazards.IngestionNo known significant effects or critical hazards.

#### Over-exposure signs/symptoms

Eye contactNo specific data.InhalationNo specific data.Skin contactNo specific data.IngestionNo specific data.

#### Indication of immediate medical attention and special treatment needed, if necessary

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### Section 4. First aid measures

Notes to physician In case of inhalation of decomposition products in a fire, symptoms may be delayed.

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments

No specific treatment.

**Protection of first-aiders** No action shall be taken involving any personal risk or without suitable training. It may

be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

# Section 5. Fire-fighting measures

**Extinguishing media** 

Suitable extinguishing

media

Unsuitable extinguishing

media

Use an extinguishing agent suitable for the surrounding fire.

None known.

Specific hazards arising from the chemical

**Hazardous thermal** decomposition products In a fire or if heated, a pressure increase will occur and the container may burst.

Decomposition products may include the following materials:

carbon dioxide carbon monoxide nitrogen oxides sulfur oxides

**Special protective actions** for fire-fighters

**Special protective** 

equipment for fire-fighters Remark

there is a fire. No action shall be taken involving any personal risk or without suitable training.

Promptly isolate the scene by removing all persons from the vicinity of the incident if

Fire-fighters should wear appropriate protective equipment and self-contained breathing

apparatus (SCBA) with a full face-piece operated in positive pressure mode. Vapors may ignite in enclosed areas.

# Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency

personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is

inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-

emergency personnel".

**Environmental precautions** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains

and sewers. Inform the relevant authorities if the product has caused environmental

pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

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### Section 6. Accidental release measures

**Small spill** 

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

# Section 7. Handling and storage

#### **Precautions for safe handling**

**Protective measures** 

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Product may be stored in bulk containers at a temperature not exceeding 70°C (158°F).

## Section 8. Exposure controls/personal protection

#### **Control parameters**

#### Occupational exposure limits

Ingredient name	Exposure limits
petroleum process oil, <3.0% DMSO extractable material	ACGIH TLV (United States, 1/2011). TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction
	ACGIH TLV (United States).
	STEL: 10 mg/m³
diphenylamine	ACGIH TLV (United States, 1/2011).
	TWA: 10 mg/m³ 8 hours.
phenothiazine	ACGIH (United States, 1994). Absorbed through skin.
	TWA: 5 mg/m³
	ACGIH TLV (United States, 1/2008). Absorbed through skin.
	TWA: 5 mg/m³ 8 hours.

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### Section 8. Exposure controls/personal protection

Appropriate engineering controls

**Environmental exposure** controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

#### **Individual protection measures**

**Hygiene measures** 

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** 

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: splash goggles

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): neoprene

**Body protection** 

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: lab coat

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** 

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Vapor and dust respirator.

Personal protective equipment (Pictograms)



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# Section 9. Physical and chemical properties

**Appearance** 

**Physical state** Liquid.

Color Amber. [Light] Odor Amine-like. **Odor threshold** Not available. Not available. Ha **Melting point** Not available. **Boiling point** Not available.

Open cup: 201.6°C (394.9°F) [Cleveland] Flash point

**Burning time** Not applicable. **Burning rate** Not applicable. Not available. **Evaporation rate** 

Vapors may ignite in enclosed areas. Flammability (solid, gas)

Lower and upper explosive

(flammable) limits

Not available.

Vapor pressure Not available. Vapor density Not available. 0.99 g/cm3 **Density Relative density** 0.99

Solubility Insoluble in the following materials: cold water.

Solubility in water Not available. Partition coefficient: n-Not applicable.

octanol/water

**Auto-ignition temperature** Not available. **Decomposition temperature** Not available. **SADT** Not available. **Viscosity** Not available.

## Section 10. Stability and reactivity

No specific test data related to reactivity available for this product or its ingredients. Reactivity

**Chemical stability** The product is stable.

**Possibility of hazardous** 

reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** No specific data.

**Incompatible materials** No specific data.

**Hazardous decomposition** 

products

Under normal conditions of storage and use, hazardous decomposition products should

not be produced.

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# **Section 11. Toxicological information**

### Information on toxicological effects

#### **Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
VANOX® 945	LD50 Dermal LD50 Oral	Rabbit Rat	>2000 mg/kg >2000 mg/kg	-

### **Irritation/Corrosion**

Product/ingredient name	Result	Species	Score	Exposure	Observation
VANOX® 945	Eyes - Mild irritant	Rabbit	-	24 hours 0.1 mL	72 hours
	Skin - Erythema/Eschar	Rabbit	0	4 hours 0.5 mL	72 hours

#### **Conclusion/Summary**

Skin

VANOX® 945: Non-irritating to the skin.

#### **Sensitization**

3	Route of exposure	Species	Result
VANOX® 945	skin	Guinea pig	Not sensitizing

#### **Mutagenicity**

Product/ingredient name	Test	Experiment	Result
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	OECD 471	Experiment: In vitro Subject: Bacteria	Negative
phenothiazine	OECD 471	Subject: Bacteria	Negative

#### Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
diphenylamine	Positive - Oral - TC	Rat - Male, Female	0 to 250 ppm	2 years

#### **Conclusion/Summary**

The International Agency for Research on Cancer (IARC) determined that there was inadequate evidence in humans and sufficient evidence in experimental animals for cancer. The overall evaluation is Group 2B. OSHA indicates that when present in mixtures at concentrations of less than 1 percent, the label warning is optional.

### **Reproductive toxicity**

Not available.

#### **Conclusion/Summary**

benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene: Suspected of damaging fertility based on a reproductive/developmental toxicity screening test (OECD 421) as a range finder followed by an extended one-generation reproductive toxicity study (OECD 443).

#### **Teratogenicity**

Not available.

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# **Section 11. Toxicological information**

Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
phenothiazine	Category 2	Oral	haematopoietic system

#### **Aspiration hazard**

Not available.

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

#### Potential acute health effects

**Eye contact**No known significant effects or critical hazards.
Inhalation
No known significant effects or critical hazards.

**Skin contact** May be harmful in contact with skin.

**Ingestion** May be harmful if swallowed.

#### Symptoms related to the physical, chemical and toxicological characteristics

Eye contactNo specific data.InhalationNo specific data.Skin contactNo specific data.IngestionNo specific data.

#### Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate Not available.

effects

Potential delayed effects Not available.

**Long term exposure** 

Potential immediate Not available.

effects

Potential delayed effects Not available.

#### Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Sub-acute NOAEL Oral	Rat	1000 mg/kg	28 days

Conclusion/Summary Diphenylamines: Overexposure to vapors from heating the product may cause eye

and/or skin irritation, and respiratory tract irritation with symptoms such as, but not

limited to, dizziness and flu-like symptoms.

**General** May cause damage to organs through prolonged or repeated exposure if swallowed.

**Carcinogenicity** Suspected of causing cancer. Risk of cancer depends on duration and level of

exposure.

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# **Section 11. Toxicological information**

MutagenicityNo known significant effects or critical hazards.TeratogenicityNo known significant effects or critical hazards.Developmental effectsNo known significant effects or critical hazards.

Fertility effects Suspected of damaging fertility.

### **Numerical measures of toxicity**

### **Acute toxicity estimates**

Route	ATE value
Oral Dermal	2500 mg/kg
Demia	2500 mg/kg

#### Other information

benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene: Based on available data, the classification criteria for specific target organ toxicity (STOT) repeated exposure are not met.

A combined repeated-dose/reproductive/developmental toxicity screening test in rats via gavage was conducted at levels of 25, 75 and 225 mg/kg/bw/day. No deaths or treatment-related signs of toxicity, behavioral assessments, functional performance or sensory reactivity were noted at any dose. Hepatic toxicity was noted for animals in both sexes at 225 mg/kg bw/day.

Repeated dose toxicity study, rat, gavage, 28 days: LOEL = 125 mg/kg bw/day

# Section 12. Ecological information

### **Toxicity**

Product/ingredient name	Result	Species	Exposure
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	Acute EC50 >100 mg/l	Algae	72 hours
, ,	Acute EC50 51 mg/l	Daphnia	48 hours
	Acute IC50 >100 mg/l	Micro-organism	3 hours
	Acute LC50 >100 mg/l	Fish	96 hours
tetrakis(methylene(3,5-di-t-butyl-	Acute EC50 >86 mg/l	Daphnia	24 hours
4-hydroxyhydrocinnamate)) methane			
	Acute IC50 >100 mg/l	Algae	72 hours
	Acute LC50 >100 mg/l	Fish	96 hours
phenothiazine	Acute EC50 0.154 mg/l Acute LC50 0.597 mg/l	Daphnia Fish	48 hours 96 hours
	Acute LC50 0.597 flig/l	LISII	96 Hours

#### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
tetrakis(methylene(3,5-di-t- butyl-	-	<10 % - Not readily - 28 days	-	-
4-hydroxyhydrocinnamate)) methane				
phenothiazine diphenylamine	OECD 301D OECD 301D	0 % - Not readily - 28 days 26 % - Not readily - 28 days	-	-

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# Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene tetrakis(methylene(3,5-di-t-butyl-4-hydroxyhydrocinnamate)) methane	-	-	Not readily  Not readily
phenothiazine	-	-	Not readily

#### **Bioaccumulative potential**

Product/ingredient name	LogPow	BCF	Potential
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	5.1	1730	high
tetrakis(methylene(3,5-di-t- butyl-	22.7	-	high
4-hydroxyhydrocinnamate)) methane			
phenothiazine	3.78	354.81	low

#### **Mobility in soil**

Soil/water partition coefficient (Koc)

Not available.

Other adverse effects

No known significant effects or critical hazards.

# Section 13. Disposal considerations

### **Disposal methods**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

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# **Section 14. Transport information**

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG\*: Packing group

## **Section 15. Regulatory information**

**United States Inventory (TSCA 8b)** 

All components are active or exempted.

**U.S. Federal regulations** 

TSCA 8(a) PAIR: diphenylamine

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

#### **SARA 302/304**

**Composition/information on ingredients** 

No products were found.

SARA 304 RQ Not applicable.

**SARA 311/312** 

Classification TOXIC TO REPRODUCTION - Category 2

SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

#### **Composition/information on ingredients**

Name	%	Classification
benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	60 - 70	TOXIC TO REPRODUCTION - Category 2
phenothiazine	1	ACUTE TOXICITY (oral) - Category 4 SKIN SENSITIZATION - Category 1B SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (haematopoietic system) (oral) - Category 2
triisodecyl phosphite	<1	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1

**State regulations** 

Massachusetts The following components are listed: PHENOTHIAZINE

**New York** None of the components are listed.

New Jersey The following components are listed: Benzenamine, N-phenyl-, reaction products with

2,4,4-trimethylpentene; PHENOTHIAZINE

Pennsylvania The following components are listed: Benzenamine, N-phenyl-, reaction products with

2,4,4-trimethylpentene; PHENOTHIAZINE

California Prop. 65 None of the components are listed.

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### **Section 15. Regulatory information**

**International regulations** 

Australia Inventory (AIIC)

Canada Inventory

All components are listed or exempted.

All components are listed or exempted.

China Inventory (IECSC)

All components are listed or exempted.

Europe inventory

All components are listed or exempted.

All components are listed or exempted.

All components are listed or exempted.

Korea inventory (KECI)

All components are listed or exempted.

New Zealand Inventory of Chemicals

All components are listed or exempted.

(NZIoC)

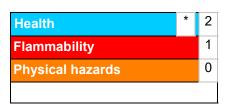
Philippines Inventory (PICCS) All components are listed or exempted.

Taiwan Chemical Substances All components are listed or exempted.

**Inventory (TCSI)** 

### Section 16. Other information

**Hazardous Material Identification System (U.S.A.)** 



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** 



Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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### **Section 16. Other information**

Version 10

**Key to abbreviations** ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

UN = United Nations

References Not available.

Information contact Vanderbilt Global Services, LLC

**Corporate Risk Management** 

1-203-295-2143

Visit www.vanderbiltchemicals.com for more information.

#### **Notice to reader**

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