

SAFETY DATA SHEET

GHS

United States

Section 1. Product and company identification

Product name VANFRE® DFL In case of emergency

1-203-853-1400

49806 Code

Chemtrec: 1-800-424-9300

30 Winfield Street

+1-703-527-3887

Outside US:

Norwalk, CT 06855

Vanderbilt Chemicals, LLC

Chemical name Diethanolamine salts of phosphate esters.

Solution of buffered phosphate esters and diethanolamine **Synonym**

Material uses Processing aid

Liquid. **Product type**

Supplier/Manufacturer

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 SKIN IRRITATION - Category 2

SERIOUS EYE DAMAGE - Category 1 substance or mixture

GHS label elements

Hazard pictograms



Signal word Danger

Hazard statements Causes skin irritation.

Causes serious eye damage.

Precautionary statements

Prevention Wear protective gloves. Wear eye or face protection: Recommended: splash goggles.

Wash thoroughly after handling.

Response Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with

> plenty of water. If skin irritation occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Storage Not applicable. **Disposal** Not applicable. 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
water Proprietary neutralized mixed alkyl phosphates (NJTSR No. 5820201001-5378P)	7732-18-5 -	50 - <60 46

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contactGet medical attention immediately. Call a poison center or physician. 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. Chemical burns

must be treated promptly by a physician.

Inhalation Get medical attention immediately. Call a poison center or physician. Remove victim to

fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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 Get medical attention immediately. Call a poison center or physician. Flush

contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a

physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. 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 contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact Causes skin irritation.

Ingestion No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact Adverse symptoms may include the following:

pain watering redness

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Section 4. First aid measures

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion Adverse symptoms may include the following:

stomach pains

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

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. If it is

suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water

before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing

media

Unsuitable extinguishing

media

In case of fire, use water spray (fog), foam, dry chemical or CO2.

Do not use water jet.

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 phosphorus oxides

Special protective actions

for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable

training.

Special protective

equipment for fire-fighters

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

apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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. Do not breathe vapor or mist.

Provide adequate ventilation. Wear appropriate respirator when ventilation is

inadequate. Put on appropriate personal protective equipment.

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Section 6. Accidental release measures

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

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). 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

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Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
diethanolamine	ACGIH TLV (United States, 3/2020). Absorbed through skin. TWA: 1 mg/m³ 8 hours. Form: Inhalable fraction and vapor ACGIH TLV (United States, 1994). Absorbed through skin.
	TWA: 0.46 ppm OSHA PEL 1989 (United States, 3/1989).
	TWA: 3 ppm 8 hours. TWA: 15 mg/m³ 8 hours. NIOSH REL (United States, 10/2016).
	TWA: 3 ppm 10 hours. TWA: 15 mg/m³ 10 hours.

Appropriate engineering 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.

Environmental exposure controls

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: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead. 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.

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.

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Section 8. Exposure controls/personal protection

Personal protective equipment (Pictograms)



Section 9. Physical and chemical properties

Appearance

Physical state Liquid.

Color Colorless to light yellow.

Odor Not available.
Odor threshold Not available.
pH 7.2 to 7.8
Melting point Not available.
Boiling point >100°C (>212°F)

Flash point Closed cup: >93.9°C (>201°F)

Burning time

Burning rate

Evaporation rate

Flammability (solid, gas)

Lower and upper explosive

Not applicable.

Not applicable.

Not available.

Not available.

(flammable) limits

NI dan State

Vapor pressure Not available.
Vapor density Not available.

Density 1.08 g/cm³ [25°C (77°F)]

Relative density 1.08

Solubility Easily soluble in the following materials: methanol and acetone.

Partially soluble in the following materials: cold water. Very slightly soluble in the following materials: diethyl ether.

Insoluble in the following materials: n-octanol.

Solubility in water Not available.

Partition coefficient: n- Not applicable.

octanol/water

Auto-ignition temperatureNot available.Decomposition temperatureNot available.SADTNot available.ViscosityNot available.

Section 10. Stability and reactivity

ReactivityNo specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous

reactions

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

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Section 10. Stability and reactivity

Conditions to avoid

Avoid contact with strong oxiders, excessive heat, sparks or open flame.

Incompatible materials

Avoid strong oxidizing agents.

Hazardous decomposition

products

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

not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
VANFRE® DFL	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	6000 mg/kg	-

Conclusion/Summary

Diethanolamine - Inhalation of mists or vapors may cause irritation of the upper respiratory tract with cough and discomfort of the nose, throat and chest. Ingestion may cause irritation of the mouth, throat, esophagus and stomach; pain or discomfort in the mouth, chest and abdomen; nausea, vomiting, diarrhea, dizziness, drowsiness, faintness, weakness, collapse and coma. Diethanolamine has produced nervous system injury in dogs and rats. Heart lesions have neen observed in mice when absorbed through skin and given orally.

Irritation/Corrosion

Not available.

Conclusion/Summary

Skin Causes skin irritation.

Eyes Causes severe eye irritation.

Sensitization

Not available.

Conclusion/Summary

Skin Not expected to cause skin sensitization.

Respiratory Not expected to be a respiratory sensitizer.

Mutagenicity

Not available.

Conclusion/Summary Not expected to be mutagenic.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Conclusion/Summary Not expected to be a reproductive toxicant.

Section 11. Toxicological information

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely

routes of exposure

Routes of entry anticipated: Oral, Inhalation.

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact Causes skin irritation.

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact Adverse symptoms may include the following:

pain watering redness

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion Adverse symptoms may include the following:

stomach pains

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

Not available.

General

No known significant effects or critical hazards.

Carcinogenicity

No known significant effects or critical hazards.

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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 effectsNo known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information Not available.

Section 12. Ecological information

Toxicity

Not available.

Conclusion/Summary Harmful to aquatic organisms.

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

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.

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: DIETHANOLAMINE

TSCA 8(a) CDR Exempt/Partial exemption: Not determined TSCA 8(d) H and S data reporting: DIETHANOLAMINE: 1989

Clean Air Act Section 112 Not regulated.

(b) Hazardous Air Pollutants (HAPs) SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.

SARA 311/312

Classification SKIN IRRITATION - Category 2

SERIOUS EYE DAMAGE - Category 1

Composition/information on ingredients

No products were found.

State regulations

MassachusettsThe following components are listed: DIETHANOLAMINENew YorkThe following components are listed: DiethanolamineNew JerseyThe following components are listed: DIETHANOLAMINEPennsylvaniaThe following components are listed: DIETHANOLAMINE

California Prop. 65

WARNING: This product can expose you to Diethanolamine, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.

ca.gov.

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Section 15. Regulatory information

		Maximum acceptable dosage level
Diethanolamine	-	-

International regulations

Australia inventory (AIIC) All components are listed or exempted.

Canada inventory All components are listed or exempted.

China inventory (IECSC) At least one component is not listed.

Europe inventory Not determined.

Japan inventory (CSCL)

Korea inventory (KECI)

All components are listed or exempted.

All components are listed or exempted.

New Zealand Inventory of Chemicals

At least one component is not listed.

New Zealand Inventory of Chemicals (NZIoC)

(NZIOC)
Philippines inventory (PICCS)

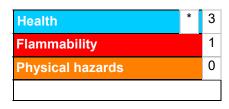
Taiwan Chemical Substances Inventory (TCSI)

At least one component is not listed.

At least one component is not listed.

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. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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



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Section 16. Other information

History

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Version 3

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.

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