Material Safety Data Sheet

Creation Date 19-Feb-2010 **Revision Date** 19-Feb-2010 **Revision Number** 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name **Protocol™ ZN-PVA Fixative**

Cat No. **23-005-37, 23-005-45, 23-005-28, 23-005-32, 23-005-40, 61005**

Synonyms No information available.

Recommended Use In vitro diagnostic

Company
Fisher Diagnostics
A Division of Fisher Scientific Company, LLC
A Part of Thermo Fisher Scientific, Inc.
8365 Valley Pike
Middletown, VA 22645-1905
Tel: (800) 528-0494

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: (202) 483-7616

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Flammable liquid and vapor. May cause eye, skin, and respiratory tract irritation . May cause central nervous system effects. Aspiration hazard if swallowed - can enter lungs and cause damage. This substance has caused adverse reproductive and fetal effects in humans. Substances known to cause developmental toxicity in humans. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Appearance Clear - Slightly hazy **Physical State** Liquid **odor** Alcohol-like

Target Organs Liver, Kidney, Blood, spleen, Central nervous system (CNS), Reproductive System

Potential Health Effects

Acute Effects
Principle Routes of Exposure

Eyes May cause irritation.
Skin May cause irritation. May be harmful in contact with skin.
Inhalation May cause irritation of respiratory tract. Inhalation may cause central nervous system effects. May be harmful if inhaled.

Ingestion Aspiration hazard. May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects This substance has caused adverse reproductive and fetal effects in humans. Substances known to cause developmental toxicity in humans. Tumorigenic effects have been reported in experimental animals.. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions Central nervous system disorders. Gastrointestinal tract. Preexisting eye disorders. Kidney disorders. Liver disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Glycerin	56-81-5	1.5-2.0%
Ethyl alcohol	64-17-5	25-30%
Acetic acid	64-19-7	4.0-5.0%
Methyl alcohol	67-56-1	1.0-2.0%
Isopropyl alcohol	67-63-0	1.0-2.0%
Zinc sulfate	7733-02-0	1.5-2.0%
Polyvinyl alcohol	9002-89-5	3.5-4.5%
Water	7732-18-5	> 50%

4. FIRST AID MEASURES

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur.

Ingestion Do not induce vomiting. Obtain medical attention.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point 27.8 - 28.3°C / 82 - 82.9°F

Method No information available.

Autoignition Temperature No information available.

Explosion Limits

Upper 19 vol %

Lower 3.3 vol %

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available.

Hazardous Combustion Products No information available.

Sensitivity to mechanical impact No information available.
Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA **Health** 1 **Flammability** 3 **Instability** 0 **Physical hazards** N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Remove all sources of ignition. Soak up with inert absorbent material. Take precautionary measures against static discharges. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Use explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Glycerin	TWA: 10 mg/m^3	(Vacated) TWA: 10 mg/m^3 (Vacated) TWA: 5 mg/m^3 TWA: 15 mg/m^3 TWA: 5 mg/m^3	

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethyl alcohol	TWA: 1000 ppm	(Vacated) TWA: 1900 mg/m^3 (Vacated) TWA: 1000 ppm TWA: 1900 mg/m^3 TWA: 1000 ppm	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m^3
Acetic acid	TWA: 10 ppm STEL: 15 ppm	(Vacated) TWA: 10 ppm (Vacated) TWA: 25 mg/m^3 TWA: 25 mg/m^3 TWA: 10 ppm	IDLH: 50 ppm TWA: 25 mg/m^3 TWA: 10 ppm STEL: 15 ppm STEL: 37 mg/m^3
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m^3 (Vacated) STEL: 325 mg/m^3 (Vacated) STEL: 250 ppm Skin TWA: 200 ppm TWA: 260 mg/m^3	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m^3 STEL: 250 ppm STEL: 325 mg/m^3
Isopropyl alcohol	TWA: 200 ppm STEL: 400 ppm	(Vacated) TWA: 980 mg/m^3 (Vacated) TWA: 400 ppm (Vacated) STEL: 1225 mg/m^3 (Vacated) STEL: 500 ppm TWA: 400 ppm TWA: 980 mg/m^3	IDLH: 2000 ppm TWA: 980 mg/m^3 TWA: 400 ppm STEL: 500 ppm STEL: 1225 mg/m^3

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Glycerin	TWA: 10 mg/m^3	TWA: 10 mg/m^3	TWA: 10 mg/m^3
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m^3	TWA: 1000 ppm TWA: 1900 mg/m^3	TWA: 1000 ppm TWA: 1900 mg/m^3
Acetic acid	TWA: 10 ppm TWA: 25 mg/m^3 STEL: 37 mg/m^3 STEL: 15 ppm	TWA: 10 ppm TWA: 25 mg/m^3 STEL: 37 mg/m^3 STEL: 15 ppm	TWA: 10 ppm TWA: 25 mg/m^3 STEL: 37 mg/m^3 STEL: 15 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m^3 STEL: 328 mg/m^3 STEL: 250 ppm Skin	TWA: 200 ppm TWA: 260 mg/m^3 STEL: 250 ppm STEL: 310 mg/m^3	TWA: 200 ppm TWA: 260 mg/m^3 STEL: 325 mg/m^3 STEL: 250 ppm Skin
Isopropyl alcohol	TWA: 400 ppm TWA: 985 mg/m^3 STEL: 500 ppm STEL: 1230 mg/m^3	TWA: 400 ppm TWA: 980 mg/m^3 STEL: 1225 mg/m^3 STEL: 500 ppm	TWA: 200 ppm STEL: 400 ppm

NIOSH IDLH: *Immediately Dangerous to Life or Health*

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear - Slightly hazy
odor	Alcohol-like
Odor Threshold	No information available.
pH	1 - 3
Vapor Pressure	No information available.
Vapor Density	No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Viscosity	No information available.
Boiling Point/Range	87 - 88°C / 188.6 - 190.4°F
Melting Point/Range	No information available.
Decomposition temperature °C	No information available.
Flash Point	27.8 - 28.3°C / 82 - 82.9°F
Evaporation Rate	No information available.
Specific Gravity	1.02
Solubility	No information available.
log Pow	No data available

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Heat, flames and sparks.
Incompatible Materials	Strong oxidizing agents, Metals, Acids, Acid anhydrides, Acid chlorides
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2), Thermal decomposition can lead to release of irritating gases and vapors
Hazardous Polymerization	Hazardous polymerization does not occur
Hazardous Reactions .	None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycerin	12600 mg/kg (Rat)	21900 mg/kg (Rat)	570 mg/m^3 (Rat) 1 h
Ethyl alcohol	7060 mg/kg (Rat)	Not listed	Not listed
Acetic acid	3310 mg/kg (Rat)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h
Methyl alcohol	5628 mg/kg (Rat)	15800 mg/kg (Rabbit)	64000 ppm (Rat) 4 h 83.2 mg/L (Rat) 4 h
Isopropyl alcohol	4396 mg/kg (Rat)	12800 mg/kg (Rat) 12870 mg/kg (Rabbit)	72.6 mg/L (Rat) 4 h
Zinc sulfate	500 mg/kg (Rat)	Not listed	Not listed
Polyvinyl alcohol	20 g/kg (Rat)	Not listed	Not listed
Water	90 mL/kg (Rat)	Not listed	Not listed

Irritation No information available.

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Ethyl alcohol	Not listed	Group 1	Not listed	X	Not listed
Isopropyl alcohol	Not listed	Group 1	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Sensitization No information available.

Mutagenic Effects Mutagenic effects have occurred in humans.

Reproductive Effects Adverse reproductive effects have occurred in humans..

Developmental Effects Substances known to cause developmental toxicity in humans.

Teratogenicity Teratogenic effects have occurred in humans..

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Glycerin	Not listed	Not listed	Not listed	EC50 24 h >500 mg/L
Ethyl alcohol	Not listed	Leucidus idus: LC50 = 8.14 mg/L/48h	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium phosphoreum:EC50 = 35470 mg/L/5 min	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h
Acetic acid	Not listed	Pimephales promelas: LC50 = 88 mg/L/96h Lepomis macrochirus: LC50 = 75 mg/L/96h	Photobacterium phosphoreum: EC50 = 8.8 mg/L/15 min Photobacterium phosphoreum: EC50 = 8.8 mg/L/25 min Photobacterium phosphoreum: EC50 = 8.8 mg/L/5 min	EC50 = 95 mg/L/24h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
Isopropyl alcohol	EC50 96 h >1000 mg/L EC50 72 h >1000 mg/L EC50 96 h >1000 mg/L	LC50 96 h 9640 mg/L	= 35390 mg/L EC50 Photobacterium phosphoreum 5 min	EC50 48 h 13299 mg/L

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Zinc sulfate	EC50 72 h 64.8 mg/L EC50 96 h 2.4 mg/L EC50 72 h 64.8 mg/L	Not listed	EC50 = 3.45 mg/L 15 min EC50 = 40.5 mg/L 30 min EC50 = 476 mg/L 5 min EC50 > 700 mg/L 16 h	EC50 48 h 0.75 mg/L

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility .

Component	log Pow
Glycerin	-1.76
Ethyl alcohol	-0.32
Acetic acid	-0.31
Methyl alcohol	-0.74
Isopropyl alcohol	0.05

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methyl alcohol - 67-56-1	U154	-

14. TRANSPORT INFORMATION

DOT

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group III

TDG

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group III

IATA

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group III

IMDG/IMO

14. TRANSPORT INFORMATION

UN-No	UN1170
Proper Shipping Name	ETHANOL SOLUTION
Hazard Class	3
Packing Group	III

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Glycerin	X	X	-	200-289-5	-		X	X	X	X	KE-29297 X
Ethyl alcohol	X	X	-	200-578-6	-		X	X	X	X	KE-13217 X
Acetic acid	X	X	-	200-580-7	-		X	X	X	X	KE-00013 X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	KE-23193 X
Isopropyl alcohol	X	X	-	200-661-7	-		X	X	X	X	KE-29363 X
Zinc sulfate	X	X	-	231-793-3	-		X	X	X	X	KE-35582 X
Polyvinyl alcohol	XU	X	-	-	-		X	X	X	X	KE-29060 X
Water	X	X	-	231-791-2	-		X	-	X	X	KE-35400 X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methyl alcohol	67-56-1	1.0-2.0%	1.0
Isopropyl alcohol	67-63-0	1.0-2.0%	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Acetic acid	X	5000 lb	-	-
Zinc sulfate	X	1000 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methyl alcohol	X		-

OSHA
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetic acid	5000 lb	-
Methyl alcohol	5000 lb	-
Zinc sulfate	1000 lb	-

California Proposition 65
This product contains the following Proposition 65 chemicals: Ethyl alcohol is only a considered a Proposition 65 developmental hazard when it is ingested as an alcoholic beverage.

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Ethyl alcohol	64-17-5	Developmental	-

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Glycerin	X	X	X	-	X
Ethyl alcohol	X	X	X	-	X
Acetic acid	X	X	X	-	X
Methyl alcohol	X	X	X	X	X
Isopropyl alcohol	X	X	X	-	X

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Zinc sulfate	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada

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.

WHMIS Hazard Class
B2 Flammable liquid
D2A Very toxic materials

16. OTHER INFORMATION

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Revision Summary "***", and red text indicates revision

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS