

ThermoFisher SCIENTIFIC

Material Safety Data Sheet

Creation Date 22-Feb-2010

Revision Date 22-Feb-2010

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Protocol™ 10% Neutral Buffered Formalin

Cat No. 23-005-46, 23-005-45, 23-005-27, 23-005-30, 23-005-28, 23-005-32, 61009

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
Chemtec US: (800) 424-9300
Chemtec EU: (202) 483-7616

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Cancer hazard. May cause eye, skin, and respiratory tract irritation. May cause an allergic skin reaction.

Appearance Colorless

Physical State Liquid

odor Characteristic formaldehyde

Target Organs

Central nervous system (CNS), Skin, Liver, Kidney, spleen, Blood

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes

May cause irritation.

Skin

May cause irritation. May be harmful in contact with skin. May produce an allergic reaction

Inhalation

May cause irritation of respiratory tract. May be harmful if inhaled.

Ingestion

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

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Chronic Effects

May cause cancer. Tumorigenic effects have been reported in experimental animals.. Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects. Repeated contact may cause allergic reactions in very susceptible persons.

See Section 11 for additional Toxicological Information.

ALLERGIC REACTIONS: MAY CAUSE ALLERGIC REACTIONS IN VERY SUSCEPTIBLE PERSONS. REPEATED CONTACT MAY CAUSE ALLERGIC REACTIONS IN VERY SUSCEPTIBLE PERSONS.

COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Water	7732-18-5	> 90
Sodium acid phosphate	7558-80-7	< 1.0
Sodium phosphate dibasic	7558-79-4	< 1.0
Formaldehyde	50-00-0	3.5 - 4.0
Methyl alcohol	67-56-1	1.0 - 2.0

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. Obtain medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. 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	> 93.3°C / 199.9°F
Method	No information available.
Autoignition Temperature	No information available.
Explosion Limits	
Upper	No data available
Lower	No data available
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.

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Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

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.

NFPA

Health 2

Flammability 1

Instability 0

Physical hazards N/A

6. ACCIDENTAL RELEASE MEASURES
Personal Precautions

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. 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. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE
Handling

Use only under a chemical fume hood. Wear personal protective 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.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION
Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde	Ceiling: 0.3 ppm	(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm	IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm
	STEL: 250 ppm Skin	(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	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 325 mg/m ³

Component	Quebec	Mexico OEL (TWA)	Ontario TWA/STEL
Formaldehyde	Ceiling: 3 mg/m ³ Ceiling: 2 ppm	Peak: 3 mg/m ³ Peak: 2 ppm	STEL: 1.0 ppm CEV: 1.5 ppm

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Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
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

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

PHYSICAL AND CHEMICAL PROPERTIES
Physical State

Liquid

Appearance

Colorless

odor

Characteristic formaldehyde

Odor Threshold

No information available

pH

6.9 - 7.1

Vapor Pressure

No information available.

Vapor Density

No information available.

Viscosity

No information available.

Boiling Point/Range

102°C / 215.6°F

Melting Point/Range

No information available.

Decomposition temperature °C

No information available.

Flash Point

> 93.3°C / 199.9°F

Evaporation Rate

No information available.

Specific Gravity

1.0

Solubility

No information available.

log Pow

No data available

STABILITY AND REACTIVITY
Stability

Stable under normal conditions.

Conditions to Avoid

Incompatible products. Heat, flames and sparks.

Incompatible Materials

Strong oxidizing agents

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors

Hazardous Polymerization

Hazardous polymerization does not occur

Hazardous Reactions

None under normal processing.

TOXICOLOGICAL INFORMATION
Acute Toxicity

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Product Information

No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	90 mL/kg (Rat)	Not listed	Not listed
Sodium acid phosphate	8280 mg/kg (Rat)	7940 mg/kg (Rabbit)	Not listed
Sodium phosphate dibasic	17 g/kg (Rat)	Not listed	Not listed
Formaldehyde	500 mg/kg (Rat)	Not listed	0.578 mg/L (Rat) 4 h
Methyl alcohol	5626 mg/kg (Rat)	15600 mg/kg (Rabbit)	64000 ppm (Rat) 4 h
			83.2 mg/L (Rat) 4 h

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
Formaldehyde	A2	Group 1	Reasonably Anticipated	X	Not listed

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)

Group 1 - Definitely Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Sensitization

May cause sensitization by skin contact

Mutagenic Effects

Mutagenic effects have occurred in humans.

Reproductive Effects

Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects

Developmental effects have occurred in experimental animals.

Teratogenicity

Teratogenic effects have occurred in experimental animals..

Other Adverse Effects

See actual entry in RTECS for complete information.

Endocrine Disruptor Information

No information available

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12. ECOLOGICAL INFORMATION

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Formaldehyde	Not listed	Leuciscus idus: LC50 = 15 mg/L 96h	Not listed	EC50 = 20 mg/L 96h EC50 = 2 mg/L 48h
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

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility

Component	log Pow
Formaldehyde	0.35
Methyl alcohol	-0.74

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
Formaldehyde - 50-00-0	U122	-
Methyl alcohol - 67-56-1	U154	-

14. TRANSPORT INFORMATION

DOT

UN-No UN3334
 Proper Shipping Name AVIATION REGULATED LIQUID, N.O.S.
 Proper technical name (4% FORMALDEHYDE)
 Hazard Class 9

TDG

UN-No UN3334
 Proper Shipping Name AVIATION REGULATED LIQUID, N.O.S.
 Hazard Class 9

IATA

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14. TRANSPORT INFORMATION

UN-No UN3334
 Proper Shipping Name AVIATION REGULATED LIQUID, N.O.S.
 Hazard Class 9

IMDG/IMO

Not regulated

15. REGULATORY INFORMATION
International Inventories

Component	TSCA	DSL	NDL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	KE-35400 X
Sodium acid phosphate	X	X	-	231-449-2	-		X	X	X	X	KE-31577 X
Sodium phosphate dibasic	X	X	-	231-448-7	-		X	X	X	X	KE-12344 X
Formaldehyde	X	X	-	200-001-8	-		X	X	X	X	KE-17074 X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	KE-23193 X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(a) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 6(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 %
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Formaldehyde	50-00-0	3.5 - 4.0	0.1
Methyl alcohol	67-58-1	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
Sodium phosphate dibasic	X	5000 lb	-	-
Formaldehyde	X	100 lb	-	-

Clean Air Act

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

OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Formaldehyde	0.5 ppm Action Level 0.75 ppm TWA 2 ppm STEL	TQ: 1000 lb

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
Sodium phosphate dibasic	5000 lb	-
Formaldehyde	100 lb	100 lb
Methyl alcohol	5000 lb	-

California Proposition 65

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Formaldehyde	50-00-0	Carcinogen	40 µg/day

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sodium phosphate dibasic	X	X	X	-	-

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Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Formaldehyde	X	X	X	X	X
Methyl alcohol	X	X	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 contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Sodium acid phosphate	2000 lb STQ
Formaldehyde	11250 lb STQ (solution)

Other International Regulations

Mexico - Grade

Slight risk, Grade 1

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

D2A Very toxic materials

D2B Toxic materials


16. OTHER INFORMATION
Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date

22-Feb-2010

Print Date

22-Feb-2010

Revision Summary

"***", and red text indicates revision

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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