

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier

Product name **DUPLEX INDICATOR**

Other means of identification

Product Code(s) **2221**
 UN-No **1170**

Recommended use of the chemical and restrictions on use

Recommended Use Test kit reagent. Industrial (not for food or food contact use). Laboratory chemicals.

Details of the supplier of the safety data sheet

Manufacturer Address
 LaMotte Company, Inc.
 802 Washington Avenue
 P.O. Box 329
 Chestertown, MD 21620 USA
 T 410-778-3100
 F 410-778-9748

Emergency telephone number

24 Hour Emergency Number (CHEM-TEL):USA, Canada, Puerto Rico 1-800-255-3924 Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION

Serious eye damage/eye irritation	Category 2A
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Flammable Liquids	Category 3

EMERGENCY OVERVIEW

DANGER

Hazard statements

Causes serious eye irritation. May cause genetic defects. May cause cancer. May damage fertility or the unborn child. May cause respiratory irritation. May cause drowsiness or dizziness. Causes damage to organs through prolonged or repeated exposure. FLAMMABLE LIQUID AND VAPOR.



Appearance dark green

Physical state liquid

Odor Alcohol

Precautionary Statements - Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Precautionary Statements - Storage

Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Other Hazards

Toxic to aquatic life with long lasting effects

Unknown Acute Toxicity

0.06% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
Methyl red	493-52-7	<0.05
Bromothymol blue	76-59-5	<0.05
Methyl alcohol	67-56-1	1-2
Ethyl alcohol	64-17-5	25-35
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

FIRST AID MEASURES**General advice**

Do not get in eyes, on skin, or on clothing. Consult a physician.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash off immediately with plenty of water for at least 15 minutes. Consult a physician.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel. Call a physician immediately.

Ingestion

Drink 1 or 2 glasses of water. Do not induce vomiting without medical advice. Call a physician immediately. Rinse mouth.

Protection of First-aiders

Use personal protective equipment. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, dry chemical, carbon dioxide (CO₂), or foam.

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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Refer to Section 8. Ensure adequate ventilation. Remove all sources of ignition.

Methods and material for containment and cleaning up

Methods for containment Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Dispose according to federal, state, and local regulations.

Methods for cleaning up After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not ingest. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool, and well-ventilated place. Keep away from heat and sources of ignition. Separate from acids. Keep away from oxidizing agents. Keep out of the reach of children.

Incompatible Products Nitric acid. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methyl red 493-52-7	-	-	None Established
Bromothymol blue 76-59-5	-	-	None Established
Methyl alcohol 67-56-1	250 ppm STEL TWA: 200 ppm	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
Ethyl alcohol 64-17-5	1000 ppm STEL	TWA: 1000 ppm TWA: 1900 mg/m ³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³
Water 7732-18-5	-	-	None Established

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face Protection Safety glasses with side-shields.

Skin and body protection Nitrile rubber. Gloves & Lab Coat.

Respiratory protection Use only with adequate ventilation.

Hygiene Measures Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	Alcohol
Appearance	dark green		
Property	Values	Remarks • Method	
pH			
Melting point/freezing point	No information available		
Boiling Point/Range	No information available		
Flash point	27.5 °C	(Calculated based on percent denatured alcohol)	
Evaporation rate			
Flammability (solid, gas)	No information available		
Flammability Limit in Air			
Upper flammability limit:	No information available		
Lower flammability limit:	No information available		
Vapor pressure	No information available		
Vapor density	No information available		
Specific gravity	No information available		
Water solubility	No information available		
Solubility in other solvents	No information available		
Partition coefficient	No information available		
Autoignition temperature	No information available		
Decomposition temperature	No information available		
Kinematic viscosity	No information available		
Dynamic viscosity	No information available		
Explosive properties	No information available		
Oxidizing properties	No information available		

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions of use and storage.
Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Nitric acid. Strong oxidizing agents.
Hazardous decomposition products	Carbon oxides (COx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Component Information

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl red 493-52-7	None Established	None Established	None Established

Bromothymol blue 76-59-5	None Established	None Established	None Established
Methyl alcohol 67-56-1	= 6200 mg/kg (Rat)	= 15800 mg/kg (Rabbit)	= 22500 ppm (Rat) 8 h = 64000 ppm (Rat) 4 h
Ethyl alcohol 64-17-5	= 7060 mg/kg (Rat)	None Established	= 124.7 mg/L (Rat) 4 h
Water 7732-18-5	> 90 mL/kg (Rat)	None Established	None Established

Information on toxicological effects

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

Chemical name	ACGIH	IARC	NTP	OSHA
Methyl red 493-52-7	-	Group 3	None Established	-
Bromothymol blue 76-59-5	-	None Established	None Established	-
Methyl alcohol 67-56-1	-	None Established	None Established	-
Ethyl alcohol 64-17-5	A3	Group 1	Known	X
Water 7732-18-5	-	None Established	None Established	-

IARC: (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Chronic toxicity

Ethanol has been shown to be a reproductive toxin only when consumed as an alcoholic beverage. Prolonged skin contact may cause skin irritation and/or dermatitis.
mg/kg mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Unknown Aquatic Toxicity 0.06% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical name	Toxicity to Algae	Toxicity to Fish	Daphnia Magna (Water Flea)
Methyl red 493-52-7	None Established	None Established	None Established
Bromothymol blue 76-59-5	None Established	None Established	None Established
Methyl alcohol 67-56-1	None Established	13500 - 17600: 96 h Lepomis macrochirus mg/L LC50 flow-through 18 - 20: 96 h Oncorhynchus mykiss mL/L LC50 static 19500 - 20700: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 28200: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static	None Established
Ethyl alcohol 64-17-5	None Established	12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static 13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static	9268 - 14221: 48 h Daphnia magna mg/L LC50 10800: 24 h Daphnia magna mg/L EC50 2: 48 h Daphnia magna mg/L EC50 Static
Water 7732-18-5	None Established	None Established	None Established

Persistence and degradability

Ethanol: When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may evaporate to a moderate extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by dry and wet deposition. When

released into the air, this material is expected to have a half-life between 1 and 10 days.

Bioaccumulation/Accumulation

No information available.

Chemical name	Log Pow
Methyl red 493-52-7	None Established
Bromothymol blue 76-59-5	None Established
Methyl alcohol 67-56-1	-0.77
Ethyl alcohol 64-17-5	-0.32
Water 7732-18-5	None Established

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method Dispose of in accordance with local regulations.

Contaminated packaging Do not re-use empty containers.

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Methyl red 493-52-7	None Established	-	None Established	None Established
Bromothymol blue 76-59-5	None Established	-	None Established	None Established
Methyl alcohol 67-56-1	None Established	Included in waste stream: F039	None Established	Ignitable waste
Ethyl alcohol 64-17-5	None Established	-	None Established	None Established
Water 7732-18-5	None Established	-	None Established	None Established

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Methyl red 493-52-7	None Established	None Established	None Established	None Established
Bromothymol blue 76-59-5	None Established	None Established	None Established	None Established
Methyl alcohol 67-56-1	None Established	None Established	None Established	None Established
Ethyl alcohol 64-17-5	None Established	None Established	None Established	None Established
Water 7732-18-5	None Established	None Established	None Established	None Established

Chemical name	California Hazardous Waste Status
Methyl red 493-52-7	-
Bromothymol blue 76-59-5	-
Methyl alcohol 67-56-1	-
Ethyl alcohol 64-17-5	-
Water 7732-18-5	-

14. TRANSPORT INFORMATION

DOT

Proper shipping name ETHANOL SOLUTION (Ethyl Alcohol Solution)
UN-No 1170
Hazard Class 3
Packing group II

IATA

Proper shipping name ETHANOL SOLUTION (Ethyl Alcohol Solution)
UN-No 1170
Hazard Class 3
Packing group II

IMDG/IMO

Proper shipping name ETHANOL SOLUTION (Ethyl Alcohol Solution)
UN-No 1170
Hazard Class 3
Packing group II

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL/NDL Complies
EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Methyl red 493-52-7	None Established
Bromothymol blue 76-59-5	None Established
Methyl alcohol 67-56-1	1.0
Ethyl alcohol 64-17-5	None Established
Water 7732-18-5	None Established

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic Health Hazard Yes

Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Methyl red 493-52-7	None Established	None Established	None Established	None Established
Bromothymol blue 76-59-5	None Established	None Established	None Established	None Established
Methyl alcohol 67-56-1	None Established	None Established	None Established	None Established
Ethyl alcohol 64-17-5	None Established	None Established	None Established	None Established
Water 7732-18-5	None Established	None Established	None Established	None Established

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)

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ
Methyl red 493-52-7	-	None Established	-
Bromothymol blue 76-59-5	-	None Established	-
Methyl alcohol 67-56-1	5000 lb	None Established	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ethyl alcohol 64-17-5	-	None Established	-
Water 7732-18-5	-	None Established	-

U.S. State Regulations**California Proposition 65**

WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm (Ethyl alcohol is only considered a Proposition 65 cancer and developmental hazard when it is ingested as an alcoholic beverage)

Chemical name	California Prop. 65
Methyl red 493-52-7	None Established
Bromothymol blue 76-59-5	None Established
Methyl alcohol 67-56-1	Developmental
Ethyl alcohol 64-17-5	Carcinogen
Water 7732-18-5	None Established

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Methyl red 493-52-7	None Established	None Established	None Established
Bromothymol blue 76-59-5	None Established	None Established	None Established
Methyl alcohol 67-56-1	X	X	X
Ethyl alcohol 64-17-5	X	X	X
Water 7732-18-5	None Established	None Established	X

16. OTHER INFORMATION

<u>NFPA</u>	Health hazard 1	Flammability 3	Instability 0	Physical and Chemical Hazards N/A
<u>HMIS</u>	Health hazard 2	Flammability 3	Physical hazards 0	Personal precautions N/A



HEALTH	2
FLAMMABILITY	3
REACTIVITY	0

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Disclaimer

The information provided on this SDS 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