

MATERIAL SAFETY DATA SHEET



Conforms to 93/112/EC and ISO 11014-1

1. Chemical Product and Company Identification

Product Name: Monoflow 4**Product Number:** LS-284

**Chemical Names/
Description:**

Aromatic hydrocarbons, cosolvents, and surfactants with scintillation phosphors

ManufacturerNational Diagnostics
305 Patton Drive
Atlanta, GA 30336**Telephone Numbers**(800) 526-3867
(404) 699-2121**Emergency Numbers****Chemtrec****(800) 424-9300 (U.S. & Canada)**
01-703-527-3887 (outside U.S. & Canada)

2. Composition/Information on Ingredients

Component	% Comp.	CAS #	EINECS #	TLV (Units)
Solvent Naphtha, Light Aromatic	50 - 60	64742-95-6	265-199-0	50 ppm
Methanol	5 - 10	67-56-1	200-659-6	200 ppm
Alcohol ethoxylate phosphate ester	20 - 30	51811-79-1		none established
Butoxy Ethanol	10 - 20	111-76-2	203-805-0	25 ppm (skin)

EEC LABEL SYMBOL AND CLASSIFICATION



HARMFUL

R: 10-22**Flammable. Harmful if swallowed****S: (2-) 23-24-62****Keep out of reach of children. Do not breathe fumes.****Avoid contact with the skin. If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label.**

3. Hazards Identification

Appearance and Odor

Clear, colorless liquid; slight aromatic odor.

EMERGENCY OVERVIEW - IMMEDIATE HAZARD

Solvent Naphtha, Light Aromatic

POISON! DANGER! UNDILUTED COMPONENTS CAUSE BURNS TO ANY AREA OF CONTACT. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CONTACT WITH OTHER MATERIALS MAY CAUSE FIRE.

Methanol

WARNING! HARMFUL OR FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. MAY CAUSE BLINDNESS. MAY BE IRRITATING TO THE SKIN, EYES, AND RESPIRATORY TRACT. TOXIC EFFECTS MAY BE DELAYED.

Alcohol ethoxylate phosphate ester

CAUSES EYE IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION.

EMERGENCY OVERVIEW - CHRONIC HAZARD WARNING:

Solvent Naphtha, Light Aromatic

CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASSOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. SYMPTOMS INCLUDE: LOSS OF MEMORY, LOSS OF INTELLECTUAL ABILITY, AND LOSS OF COORDINATION.

Methanol

MARKED IMPAIRMENT OF VISION HAS BEEN REPORTED. OVEREXPOSURE MAY CAUSE LIVER, KIDNEY, AND ADVERSE CNS EFFECTS. POSSIBLE REPRODUCTIVE HAZARD. REPEATED OR PROLONGED EXPOSURE MAY CAUSE SKIN IRRITATION.

Alcohol ethoxylate phosphate ester

NO ADVERSE EFFECTS HAVE BEEN DOCUMENTED IN HUMANS AS A RESULT OF CHRONIC EXPOSURE.

Potential Health Effects

Inhalation

Solvent Naphtha, Light Aromatic:

SLIGHTLY TOXIC. Breathing of the mists, vapors or fumes may irritate the nose, throat, and lungs. May cause central nervous system depression or effects. May cause cardiac sensitization, including arrhythmias (irregular heart beats) and death due to cardiac arrest. Chronic exposure to high doses may damage the peripheral nerves, resulting in numbness or tingling in the extremities. See also Reproductive Toxicity and Target Organ Statement for further special toxic effects.

Methanol:

May irritate the respiratory tract and mucuous membranes. Exposure may cause central nervous system symptoms similar to those listed under Ingestion.

Alcohol ethoxylate phosphate ester:

Vapors or mist, especially as generated from heating the material or as from exposure in poorly ventilated areas or confined spaces, may be irritating and cause discomfort in nose and throat.

Prolonged exposure may cause difficulty breathing.

Ingestion

Solvent Naphtha, Light Aromatic:

MODERATELY TOXIC. May cause irritation of the mouth, throat, and gastrointestinal tract. Aspiration into lungs may cause chemical pneumonia and lung damage. Aspiration symptoms may be delayed in onset by up to 24 hours. Exposure may also cause central nervous system symptoms similar to those listed under Signs and Symptoms of Overexposure - Inhalation. See also Reproductive Toxicity and Target Organ Statement for further special toxic effects.

Methanol:

Primary toxic effects are metabolic acidosis and visual system damage. Visual system damage may progress from visual blurring to complete blindness. May cause harmful central nervous system effects

which may be delayed.

Alcohol ethoxylate phosphate ester:

May be harmful by ingestion.

Skin

Solvent Naphtha, Light Aromatic:

SLIGHTLY IRRITATING. Contact may cause reddening, itching and inflammation. Repeated or prolonged skin contact may cause reddening, itching and inflammation. Defatting agent.

Methanol:

Absorption from prolonged or massive skin contact may cause poisoning. Repeated or prolonged contact may result in defatting, redness, itching, inflammation, cracking and possible secondary infection. Exposure may cause symptoms similar to those listed under Ingestion.

Alcohol ethoxylate phosphate ester:

Brief contact may cause slight irritation. Prolonged contact, as with clothing wetted with material, may cause more severe irritation and discomfort.

Eyes

Solvent Naphtha, Light Aromatic:

SLIGHTLY IRRITATING. Exposure to vapors, fumes or mists may cause irritation. Direct contact may cause irritation, redness, tearing, and blurred vision. Prolonged or repeated exposure may cause irritation and conjunctivitis.

Methanol:

Exposure to liquid, vapors, fumes or mists may cause irritation. Direct contact may cause irritation, pain, corneal inflammation and possible corneal damage.

Alcohol ethoxylate phosphate ester:

Causes irritation and possible injury to the cornea.

Signs and Symptoms of Overexposure

Inhalation

Solvent Naphtha, Light Aromatic:

Symptoms may include sore throat, coughing, labored breathing, sneezing and burning sensation, depending on the concentration and duration of exposure. If CNS depression or effects occur, symptoms include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Methanol:

Irritation of the respiratory tract and mucous membranes. For central nervous system symptoms which may occur due to exposure by inhalation, see Ingestion.

Alcohol ethoxylate phosphate ester:

Discomfort in nose and throat, nasal discharge, coughing, difficulty breathing.

Ingestion

Solvent Naphtha, Light Aromatic:

Ingestion symptoms may include salivation, pain, nausea, vomiting, and diarrhea. Exposure may also cause central nervous system symptoms similar to those listed under Inhalation

Methanol:

Effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death.

Alcohol ethoxylate phosphate ester:

Abdominal discomfort, nausea, and diarrhea.

Skin

Solvent Naphtha, Light Aromatic:

Reddening, itching, and inflammation.

Methanol:

Exposure may cause symptoms similar to those listed under Ingestion.

Alcohol ethoxylate phosphate ester:

Local redness and swelling.

Eyes

Solvent Naphtha, Light Aromatic:

Irritation, redness, tearing, and blurred vision.

Methanol:

Irritation, redness, pain, and inflammation.

Alcohol ethoxylate phosphate ester:

Excess blinking and tear production. Marked redness and swelling of the eye with injury to the cornea.

Carcinogenicity

Solvent Naphtha, Light Aromatic:

Benzene, a known carcinogen, may be present in trace amounts, less than 50 ppm. Otherwise, there are no known or anticipated carcinogens present in Naphtha.

Methanol:

This component is not listed as a carcinogen by NTP or IARC.

Alcohol ethoxylate phosphate ester:

Not listed by NTP or IARC as a known or possible carcinogen.

Mutagenicity

Solvent Naphtha, Light Aromatic:

No information available.

Methanol:

No information available.

Alcohol ethoxylate phosphate ester:

No information available.

Reproductive Toxicity

Solvent Naphtha, Light Aromatic:

This product contains components which may cause adverse reproductive effects. Pregnant women may be at an increased risk from exposure. Consumption of alcoholic beverages may enhance toxic effects.

Methanol:

Possible reproductive hazard.

Alcohol ethoxylate phosphate ester:

No information available.

Teratogenic Effects

Solvent Naphtha, Light Aromatic:

This product contains components which may cause adverse developmental effects. Pregnant women may be at an increased risk from exposure. Consumption of alcoholic beverages may enhance toxic effects.

Methanol:

No information available.

Alcohol ethoxylate phosphate ester:

No information available.

Routes of Entry

Solvent Naphtha, Light Aromatic:

Inhalation, ingestion, or skin contact.

Methanol:

Inhalation, ingestion, or skin contact.

Alcohol ethoxylate phosphate ester:

Ingestion, inhalation.

Target Organ Statement

Solvent Naphtha, Light Aromatic:

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: kidney, liver, spleen, adrenals, thymus and central nervous system. Pre-existing medical conditions which may be aggravated by exposure include disorders of the skin, kidney, liver, cardiovascular and respiratory systems.

Methanol:

Chronic intoxication may cause degenerative changes in liver, kidneys, brain, gastrointestinal tract, and heart muscle. Persons with pre-existing liver impairment, skin and respiratory disorders may be at an increased risk from exposure.

Alcohol ethoxylate phosphate ester:

No information available.

4. First Aid Measures

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion

Do not induce vomiting. If swallowed and the person is conscious, immediately give large amounts of water. Get medical attention.

Skin

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eyes

Immediately flush eyes with plenty of water for at least fifteen minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Flash Point	23 C	Flammable Limits	ND
Flash Point Method	PMCC*	Autoignition temperature	865.4 F

* Flash point value determined by Pensky-Martin Closed Cup method (PMCC). Upon request, alternate Tagliabue Closed Cup data (TCC) has been provided in some instances to local regulatory agencies.

Extinguishing media

Dry powder, foam, carbon dioxide. (Water may be ineffective.)

Protective Equipment

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Hazardous Combustion Products

Thermal decomposition products may include toxic oxides of nitrogen, and carbon.

Unusual Fire and Explosion Hazards

Flammable liquid. Vapor forms explosive mixtures with air. Vapor may travel considerable distances to ignition source and flash back.

NFPA Codes: Health 1 Flammability 2 Reactivity 0

6. Accidental Release Measures

Steps to be taken in case material is released or spilled

Isolate hazard area and deny entry. Keep ignition sources out of area and shut off all ignition sources.

Absorb spill with inert material (e.g. dry sand or earth) then place in a chemical waste container.

Waste Disposal Method

Disposal must be made in accordance with applicable federal, state, and local regulations.

Personal Precautions

Wear appropriate protective equipment as specified in section 8.

7. Handling and Storage

Handling

Avoid contact and inhalation. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling.

Transfer methods should avoid static sparks. Use explosion proof ventilation.

Storage

Keep in a tightly closed container, stored in a cooled, dry, ventilated area away from sources of heat or ignition. Protect from physical damage. Isolate from incompatible materials (section 10).

Storage Temperature

Room Temperature

Disposal

Observe all national, state, and local regulations regarding product disposal. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids).

8. Exposure Controls/Personal Protection

Airborne Exposure Limits

Component: Solvent Naphtha, Light Aromatic

ACGIH Threshold Limit Value (TLV): 50 ppm

OSHA Permissible Exposure Limit

(PEL):

Component: Methanol

ACGIH Threshold Limit Value (TLV): 200 ppm

OSHA Permissible Exposure Limit

(PEL):

Component: Alcohol ethoxylate phosphate ester

ACGIH Threshold Limit Value (TLV): none established

OSHA Permissible Exposure Limit

(PEL):

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborn Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source.

Respiratory Protection

If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.

Eye Protection

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Other Control Measures

N.A.

9. Physical Properties

Boiling point 360 F

Evaporation Rate

Melting point N.A.

Solubility in water Gels w/ small quant.

Vapor pressure (mmHg) 2.0 mm Hg @ 25 C

pH Neutral

Vapor density (Air = 1) 4.8
% volatile by volume 70

Specific gravity (H₂O = 1) 0.92

10. Stability and Reactivity

Stability

Stable under normal conditions of use.

Conditions to Avoid

Heat, sources of ignition, and incompatibles.

Hazardous Decomposition Products

Combustion products include hazardous oxides of carbon, nitrogen, and sulfur.

Hazardous Polymerization

Will not occur

Incompatibles

Solvent Naphtha, Light Aromatic:

Oxidizing agents.

Methanol:

Incompatible with acetyl bromide, calcium carbide, chlorine, chromic anhydride, cyanuric chloride, dichloromethane, diethyl zinc, lead perchlorate, magnesium, metals, strong oxidizers, perchloric acid, phosphorous trioxide, potassium, sodium hypochlorite, sulfuric acid, and zinc.

Alcohol ethoxylate phosphate ester:

Oxidizing agents.

Butoxy Ethanol:

Strong oxidizing agents. Strong bases and salts of strong bases at elevated temperatures. Aluminum surfaces.

11. Toxicological Information

Product LD50 Values

Monoflow 4 Oral Rat LD50 (mg/kg): No Data
Monoflow 4 Dermal Rabbit LD50 (mg/kg): No Data

Component Cancer List Status

	NTP Carcinogen		IARC Category
	Known	Anticipated	
Solvent Naphtha, Light Aromatic	No	No	3
Methanol	No	No	None
Alcohol ethoxylate phosphate ester	No	No	None
Butoxy Ethanol	No	No	None

12. Ecological Information

Solvent Naphtha, Light Aromatic

No information available.

Methanol

When released into the soil, this material is expected to readily biodegrade. 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 the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected to readily biodegrade. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into air, this material is expected to have a half-life between 10 and 30 days. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition. This material is expected to be slightly toxic to aquatic life.

Alcohol ethoxylate phosphate ester

No information available.

Butoxy Ethanol

No information available.

13. Disposal Considerations

Observe all national, state, and local regulations regarding product disposal. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids).

14. Transport Information

D.O.T.

Proper Shipping Name: Not regulated.

Hazard Class: N.A.

UN Number: N.A.

Packing Group: N.A.

I.A.T.A.

Proper Shipping Name: Petroleum Products N.O.S.

Hazard Class: 3

UN Number: 1268

Packing Group: 3

I.M.O.

Proper Shipping Name: Petroleum Products N.O.S.

Hazard Class: 3

UN Number: 1268

Packing Group: 3

15. Regulatory Information

United States

TSCA Regulatory Statement

All intentional ingredients are listed on the TSCA Inventory.

SARA 311/312 Hazard Categories

Component	Fire	Pressure	Reactivity	Acute	Chronic
Solvent Naphtha, Light Aromatic	Yes	No	No	Yes	Yes
Methanol	Yes	No	No	Yes	Yes
Alcohol ethoxylate phosphate ester	No	No	No	Yes	No
Butoxy Ethanol	Yes	No	No	Yes	No

Europe

EEC Regulatory

All intentional ingredients are listed on the European EINECS Inventory.

EEC LABEL SYMBOL AND CLASSIFICATION



HARMFUL

R: 10-22

Flammable. Harmful if swallowed

S: (2-) 23-24-62

Keep out of reach of children. Do not breathe fumes.

Avoid contact with the skin. If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label.

16. Other Information

NFPA Codes: Health 1 Flammability 2 Reactivity 0

MANUFACTURER DISCLAIMER: The information given herein is offered in good faith as accurate, but without guarantee. Conditions of the use and suitability of the product for particular uses are beyond our control. All risks of use of the product are therefore assumed by the user. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.