

1.) Identification

Product Identifier – Flowmaster Permanent Marker

Other Means of Identification – Red (09911), Blue (09902), Black (09901), Green (09905)

Recommended Use of Chemicals and Restrictions – Marking Pens

Supplier Information

Arro-Mark LLC.
158 West Forest Ave
Englewood, New Jersey, 07631 USA

Emergency Telephone Number

Chem Trec: US 800-424-9300

2.) Hazard(s) Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification

Physical Hazards	Flammable Liquids	Category 3
Health Hazards	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity – single exposure	Category 3

GHS Label Elements



THIS PRODUCT IS NOT CORROSIVE TO METAL

Signal Word

Danger

Hazard Statements

- H225: Highly flammable liquid and vapour
- H318: Causes serious eye damage
- H336: May cause drowsiness or dizziness

Precautionary Statements

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233: Keep container tightly closed.
- P235: Keep cool.
- P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/light/equipment.
 P242: Use only non-sparking tools.
 P243: Take precautionary measures against static discharge.
 P261: Avoid breathing vapors.
 P271: Use only outdoors or in a well-ventilated area.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P281: Use personal protective equipment as required.
 P313: Get medical advice/attention.
 P314: Get Medical advice/attention if you feel unwell.
 P340: Remove person to fresh air and keep comfortable for breathing.
 P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P304+312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
 P370+378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
 P370+380: In case of fire: Evacuate area.
Hazard not otherwise specified

3.) Composition/Information on Ingredients

Substance/mixture: Mixture

Other means of identification: Not Available

CAS No.: Not Applicable

Chemical Name	CAS-No	Weight %	Trade Secret
n-propanol	71-23-8	50-100%	Yes

4.) First Aid Measures

Description of Necessary First-Aid Measures

General Advice	Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
Eye Contact	Get 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.
Skin Contact	Get medical attention immediately. Call a poison center or physician. Wash skin thoroughly with soap and water or use recognized skin cleanser. 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. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
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.
Ingestion	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
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Most Important Symptoms/effects

Eye Contact	Causes serious eye damage.
Inhalation	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Skin Contact	Defatting to the skin. May cause skin dryness and irritation.
Ingestion	May cause burns to mouth, throat and stomach. Gastrointestinal discomfort, abdominal pain, vomiting

Over-exposure signs/symptoms

Eye Contact	Adverse symptoms may include the following: pain, watering, redness
Inhalation	Adverse symptoms may include the following: respiratory tract irritation, coughing
Skin Contact	Adverse symptoms may include the following: pain or irritation, redness, dryness, cracking, 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	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled
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

5.) Fire-fighting Measures

Flash Point - 72 °F

Suitable Extinguishing Media

Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable Extinguishing Media

Do not use water jet.

Specific Hazards for Chemical

Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous Thermal Decomposition Products

Decomposition products may include the following materials:

Carbon dioxide, Carbon monoxide, (dense) black smoke, Aldehydes, Organic acids

Protective Equipment and Precautions for Firefighters

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6.) Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

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.

Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. See also the information in "For nonemergency 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 Clean up

<p>Small Spill</p>	<p>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. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor</p>
<p>Large Spill</p>	<p>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 noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Use spark proof tools and explosion-proof equipment. 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.</p>

7.) Handling and Storage

Precautions for Safe Handling

Put on appropriate personal protective equipment (see Section 8). 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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Conditions for Safe Storage Incompatible Products

Do not store above the following temperature: 30°C (86°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. 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. Store in original container, protected from direct sunlight.

8.) Exposure Controls / Personal Protection

Chemical Name	Exposure Limits
n-Propanol	<p>ACGIH TWA: 100 ppm</p>

	<p>NIOSH REL TWA: 200 ppm TWA: 500 mg/m³ ST: 250 ppm ST: 625 mg/m³</p> <p>OSHA TWA: 200 ppm TWA: 500 mg/m³ STEL: 250 ppm STEL: 625 mg/m³ TWA: 200 ppm 500mg/m³</p>
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Appropriate Engineering Controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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.

Personal 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. Contaminated work clothing should not be allowed out of the workplace. 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.

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. 1 - 4 hours (breakthrough time): Butyl rubber (0.70 mm)

< 1 hour (breakthrough time): nitrile rubber (0.4 mm)

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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

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

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

9.) Physical and Chemical Properties

Physical State	Liquid
Appearance	Varies
Flammability Limits	No data
Odor	Alcohol
Vapor Pressure	No data
Odor threshold	No data
Vapor Density	No data
pH	No data
Relative Density	No data
Melting Point	No data
Boiling Point	282°F
Solubility	Completely soluble
Flash Point	No data
Evaporation Rate	No data
Flammability	No data
Auto-Ignition Temperature	No data
Decomposition Temperature	No data
Viscosity	No data

10.) Stability and Reactivity

Reactivity – No 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. Vapors may form explosive mixture with air.

Hazardous Polymerization – No specific data

Conditions to Avoid – Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible Materials – Reactive or incompatible with the following materials: oxidizing materials, Strong acids, Aldehydes, halogens

Hazardous Decomposition of Product – No specific Data

11.) Toxicological Information

Acute Toxicity

Chemical	Result	Species	Dose	Exposure
n-Propanol	LD50 Oral	Rat	5,400 mg/kg	4 hours
	LC50 Inhalation Vapor	Rat	33.8 mg/l	
	LD50 Dermal	Rabbit	4,032 mg/kg	

Irritation/Corrosion

Chemical	Result	Species	Score	Exposure	Observation
n-Propanol	Skin – Irritant Eye – Severe Damage				

Sensitization

Chemical	Route of exposure	Species	Result

Mutagenicity

Chemical	Test	Exposure	Result

Carcinogenicity

Chemical	OSHA	IARC	NTP
Titanium Dioxide		2B	

Information on the likely routes of exposure

Not Available

Specific Target Organ Toxicity (Single Exposure)

Chemical	Category	Route of Exposure	Target Organs
n-Propanol	Category 3	Inhalation	Central Nervous System

Specific Target Organ Toxicity (Repeated Exposure)

Chemical	Category	Route of Exposure	Target Organs

Potential Acute Health Effects

Eye Contact	Causes serious eye damage
Inhalation	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness
Skin Contact	Defatting to the skin. May cause skin dryness and irritation
Ingestion	May cause burns to mouth, throat and stomach

Aspiration Hazard

Chemical	Result
n-Propanol	May be harmful if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye Contact	Adverse symptoms may include the following: Pain, Watering, Redness
Inhalation	Adverse symptoms may include the following: Respiratory tract irritation, Coughing
Skin Contact	Adverse symptoms may include the following: Pain or irritation, Redness, Dryness, Cracking, Blistering may occur
Ingestion	Adverse symptoms may include the following: Stomach pains

Description of the delayed, immediate, or chronic effects from short- and long-term exposure

Short Term Exposure:

Potential immediate effects: Not available

Potential delayed effects: Not available

Long Term Exposure

Potential immediate effects: Not available

Potential delayed effects: Not available

Potential Chronic Health Effects

Chemical	Result	Species	Dose	Exposure
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General:

Carcinogenicity: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure

Mutagenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects:

Species: rat

Application Route: Inhalation

Dose: 0, 3500, 7000 ppm

Duration of Single Treatment: 7 h

Frequency of Treatment: 7 days/week

Fertility: NOAEC: 3,500 ppm

12.) Ecological Information

Ecotoxicity

Product/ingredient name	Result	Species	Exposure
n-Propanol	LC50 4,555 mg/l	Fathead minnow	96 hours
	LC50 3,644 mg/l	Daphnia Magna	48 hours
	EC50 9,170 mg/l	Algae	48 hours
	NOEC50 >100 mg/l	Daphnia	21 days
	IC50 >1000 mg/l	Bacteria	3 hours
2-butoxyethanol	LC50 1,474 mg/l	Oncorhynchus Mykiss	96 hours
	EC50 1,550 mg/l	Water Flea	48 hours
	NOEC >100 mg/l	Zebra Fish	21 days
	NOEC 100 mg/l	Daphnid	21 days
	EC50 1,840 mg/l	Algae	72 hours

Persistence and Degradability

Chemical	Test	Result	Dose	Inoculum
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Chemical	Aquatic half-life	Photolysis	Biodegradability
n-Propanol			75%

Bioaccumulation

Chemical	LogP _{ow}	BCF	Potential
n-Propanol	0.25-0.35		

Mobility in Soil

Soil/water partition Coefficient (K_{oc}): Not Available

Other Information

13.) Disposal considerations

Disposal Method

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. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers

Disposal Container

Precautions

United States – RCRA Toxic Hazardous Waste “U” List

Chemical	CAS No.	Status	Reference No.
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14.) Transportation Information

Domestic Highway (Containers <1 Quart are ORM-D)

Proper Shipping Name: Paint

Hazard Class/Subsidiary: 3

UN/NA No.: UN1263

Packing Group: 3

Label Required: Combustible Liquid (2)

Domestic Air Shipments (Pens)

Proper Shipping name: Consumer Commodity

Hazard class/Subsidiary Hazard: 9

UN/NA No.: I.D. 8000

Packing Group: none

Label Required: class 9

15.) Regulatory Information

Regulations

U.S. Federal regulations

Clean Water Act (CWA) 311:

	Chemical	CAS no.	%
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Clean Air Act Section 602 Class I Substances: Not Listed

Clean Air Act Section 602 Class II Substances: Not Listed

DEA List I Chemicals (Precursor Chemicals): Not Listed

DEA List II Chemicals (Essential Chemicals): Not Listed

State Regulations

Massachusetts: The following components are listed: N-PROPANOL

New York: The following components are listed: N-PROPANOL

New Jersey: The following components are listed: N-PROPANOL

Pennsylvania: The following components are listed: N-PROPANOL

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312

Hazards: Fire Hazard

Acute Health Hazard

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

The components of this product are reported in the following inventories:

United States TSCA Inventory	Listed
Canadian Domestic Substances List (DNL)	Listed
Australia Inventory of Chemical Substances (AICS)	Listed
European List of Notified Chemical Substances (ELINCS)	Listed
Japanese Handbook of Existing and New Chemical Substances (MITI)	Listed
Korean Toxic Substances Control Act (ECL)	Listed
Philippines Inventory (PICCS)	Listed
Inventory of Existing Chemical Substances in China (IECSC)	Listed

16.) Other Information

Prepared Date: 4/15/15

Revision Date: 5/28/15

Version: 2

HMIS Rating:

Health: 3

Flammability: 3

Physical Hazard: 0

NFPA Ratings:

Health: 3

Flammability: 3

Instability: 0

Disclaimer: For use as marking pens only.