


SECTION 1: Identification

Product identifier	
Product name	Molybdenum Indicator Solution
Product number	R-0891, R-0891-PL
Recommended use and restrictions	To be used in accordance with manufacturer instructions or under the direct guidance of the manufacturer.
Manufacturer	Taylor Technologies, Inc. 31 Loveton Circle Sparks, MD 21152 Phone: (410) 472-4340 Emergency phone: (800) 837-8548

SECTION 2: Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Eye damage/irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 1
Environmental hazards	Not currently regulated by OSHA. For additional information, refer to section 12 of the SDS.	
Label elements		
Hazard pictograms		
Signal word	Danger	
Hazard statements	Highly flammable liquid and vapor. Causes serious eye irritation. Causes damage to organs.	
Precautionary statements		
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/eye protection/face protection if contact is likely to occur. Wash skin thoroughly after handling. Do not breathe dust/fumes/gas/mists/vapors/spray. Do not eat, drink, or smoke when using this product.	
Response	IF EXPOSED: Call a physician or poison control center. IF ON SKIN (OR HAIR): Immediately take off all contaminated clothing. Rinse skin with water. 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. IN CASE OF FIRE: Use alcohol-resistant foam, carbon dioxide, dry chemical powder, or water fog to extinguish.	
Storage	Store in well-ventilated place. Keep cool. Keep tightly capped. Store out of direct sunlight between 36°F-85°F. Store locked up.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	
Hazards not otherwise classified	Not applicable	

SECTION 3: Composition/information on ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	% w/w
Ethyl alcohol	Ethanol	64-17-5	80-100
Methyl alcohol	Methanol	67-56-1	1-5
Nonhazardous and other components below reportable levels	Not applicable	Not applicable	5--10

SECTION 4: First-aid measures

If inhaled

Remove individual to fresh air. Seek medical advice/attention if breathing becomes difficult or if respiratory irritation develops. Give oxygen or artificial respiration if needed.

In case of skin contact

Immediately flush skin with plenty of water for at least 20 minutes. If clothing comes in contact with the product, the clothing should be removed and laundered before reuse. Seek medical advice/attention if irritation develops.

In case of eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist or in all cases of concern, seek medical advice/attention.

If swallowed

Immediately call a physician or poison control center. Rinse mouth. Never give anything by mouth to a person who is unconscious or is having convulsions. Do NOT induce vomiting unless directed by physician. If vomiting occurs, keep head low so that stomach content does not get into the lungs. If symptoms persist or in all cases of concern, seek medical advice/attention.

Most important symptoms and effects, both acute and delayed

Refer to section 2 and/or section 11 of the SDS for the most important known symptoms and effects.

Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

General information

Ensure medical personnel are aware of the material(s) involved and take precautions to protect themselves.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media Alcohol-resistant foam, carbon dioxide, dry chemical powder, or water fog.

Unsuitable extinguishing media Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Specific hazards arising from the substance or mixture

Fire hazard Flammable liquid and vapor. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can be electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential static discharge, use proper bonding and grounding procedures. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Vapors are heavier than air and may spread along floors.

Explosion hazard Vapors may form explosive mixtures with air. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Vapors are heavier than air and may spread along floors.

Reactivity Hazardous reactions will not occur under normal conditions.

Hazardous combustion products Carbon oxides, nitrogen oxides. Other irritating fumes and smoke.

Advice for firefighters

Precautionary measures Exercise caution when fighting any chemical fire; hazardous fumes will be present.

Firefighting equipment/instructions Use water spray or fog for cooling exposed containers.

Protection during firefighting Do not enter fire area without proper protective equipment, including respiratory protection.

Other information Refer to section 9 of the SDS for flammability properties.

SECTION 6: Accidental release measures

Personal precautions, protective equipment, and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during cleanup. Do not breathe dust/ fumes/ gas/ mists/ vapors/ spray. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protective equipment, refer to section 8 of the SDS.

Environmental precautions

Avoid discharge into drains, watercourses, or onto the ground.

Methods and material for containment and cleaning up

Ventilate the contaminated area. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Dike the spilled material where this is possible. Stop leak if it can be done without risk. Absorb spillage to prevent material damage. Absorb in vermiculite, dry sand or earth, and place into containers. Prevent entry into waterways, sewers, basements, or confined areas. Following product recovery, flush area with water to remove residual contamination. Never return spills to original containers for reuse. Contaminated absorbent material may pose the same hazards as the spilled product. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Reference to other sections

For exposure controls and personal protection, refer to section 8 of the SDS. For waste disposal, refer to section 13 of the SDS.

SECTION 7: Handling and storage

Personal precautions, protective equipment, and emergency procedures

Vapors may form explosive mixtures with air. Keep away from sources of ignition. NO SMOKING. Do not handle, store or open near an open flame, sources of heat or sources of ignition. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fumes/gas/mists/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. For personal protective equipment, refer to section 8 of the SDS. Keep away from incompatibles. Observe good industrial hygiene practices. Label containers appropriately.

Conditions for safe storage, including any incompatibilities

Store in well-ventilated place. Keep cool. Keep tightly capped. Store out of direct sunlight between 36°F-85°F. Store away from incompatible materials (refer to section 10 of the SDS).

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

US ACGIH Threshold Limit Values

Components	Type	Value
Ethyl alcohol (CAS 64-17-5)	STEL	1900 mg/m ³
Methyl alcohol (CAS 67-56-1)	TWA	260 mg/m ³
Methyl alcohol (CAS 67-56-1)	STEL	325 mg/m ³ (skin)

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Ethyl alcohol (CAS 64-17-5)	ST	1225 mg/m ³
Ethyl alcohol (CAS 64-17-5)	TWA	1900 mg/m ³
Ethyl alcohol (CAS 64-17-5)	IDLH	3300 mg/m ³
Methyl alcohol (CAS 67-56-1)	TWA	260 mg/m ³
Methyl alcohol (CAS 67-56-1)	ST	325 mg/m ³ (skin)
Methyl alcohol (CAS 67-56-1)	IDLH	7860 mg/m ³

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Ethyl alcohol (CAS 64-17-5)	PEL	1900 mg/m ³
Methyl alcohol (CAS 67-56-1)	PEL	260 mg/m ³
Methyl alcohol (CAS 67-56-1)	ST	325 mg/m ³ (skin)

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Methyl alcohol (CAS 67-56-1)	15 mg/L	Methanol	Urine	End of shift

Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust

ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eyewash facilities and emergency shower must be available when handling this product.

Personal protective equipment

Eye/face protection	Wear appropriate chemical safety goggles if contact is likely to occur.
Skin protection	Wear appropriate chemical-resistant gloves and clothing if contact is likely to occur.
Body protection	Wear appropriate protective clothing if contact is likely to occur.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fumes at levels exceeding the exposure limits. Advice should be sought from respiratory protection suppliers.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Form	Liquid
Color	Red-orange
Odor	Alcohol
Odor threshold	No data available
pH	No data available
Evaporation rate	No data available
Melting point	No data available
Freezing point	No data available
Initial boiling point (boiling range)	174°F (78°C)
Flash point	57°F (14°C) Closed cup
Specific gravity	0.81 at 68°F (20°C)
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Flammable
Upper Flammability Limit	UEL 19% v/v
Lower Flammability Limit	LEL 3.3% v/v
Vapor pressure	No data available
Vapor density	No data available
Relative density	Soluble in all proportions
Solubility	No data available
Partition coefficient (n-octanol/water)	1.2 cP at 68°F (20°C)
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

SECTION 10: Stability and reactivity

Reactivity	Hazardous reactions will not occur under normal conditions.
Chemical stability	Stable under recommended handling and storage conditions (refer to section 7 of the SDS).
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, sparks, open flames, and other ignition sources. Temperatures exceeding the flash point. Direct sunlight. Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Acetaldehyde, acids, chlorine, ethylene oxide, halogenated hydrocarbons, isocyanates, nitrites, organics, strong acids, strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products under normal conditions.

SECTION 11: Toxicological information

Information on toxicological effects

Likely routes of exposure are skin/eye contact and ingestion.

Most important symptoms/effects, acute and delayed	Direct skin contact may cause irritation. Symptoms may include redness and itching.
	Direct eye contact may cause serious irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
	Inhalation of mists can cause respiratory irritation, drowsiness, dizziness. Symptoms may include coughing and breathing difficulties.
	Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea. Ingestion of significant quantities may result in damage to the lungs and nervous system.
Acute toxicity	This product is not classified as an acute toxicity hazard. See below for individual ingredient acute toxicity data.

Molybdenum Indicator Solution (CAS Mixture)

Acute

Dermal

LD ₅₀	Mouse	No data available
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Inhalation

LC ₅₀	Rat	>20 mg/L
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Oral

LD ₅₀	Rat	>2000 mg/kg
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Components	Species	Acute Toxicity Data
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Methyl alcohol (CAS 67-56-1)

Acute

Dermal

LD ₅₀	Mouse	No data available
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Inhalation

LC ₅₀	Rat	116 mg/L
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Oral

LD ₅₀	Rat	1187 mg/kg
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Skin corrosion/irritation No data available

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory sensitization No data available

Skin sensitization No data available

Germ cell mutagenicity No data available

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Not classifiable

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1096)

Not regulated

US National Toxicology Program (NTP) Report on Carcinogens

Not regulated

Reproductive toxicity No data available

Specific target organ toxicity (single exposure) Causes damage to organs.

Specific target organ toxicity (repeated exposure) No data available

Aspiration hazard No data available

SECTION 12: Ecological information

Ecotoxicity This product is not classified as environmentally hazardous.

Persistence and degradability No data available

Bioaccumulative potential No data available

Mobility in soil

No data available

Other adverse effects

Large or frequent spills can have a harmful or damaging effect on the environment.

SECTION 13: Disposal considerations

Collect and reclaim or dispose of in sealed containers at a licensed waste disposal site. Since emptied containers may retain product residue, follow label warnings even after container is emptied. This material and its container must be disposed of in a safe manner. Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

DOT

UN number	1170
UN Proper shipping name	Ethanol solution
Reportable Quantity	None
Class (Subsidiary risk)	3
Label(s)	3
Packing group	II
Special provisions	24, IB2, IB3, T2, TP1
Packaging exceptions	4b, 150
Packaging, non-bulk	202

IATA

UN number	1170
UN Proper shipping name	Ethanol solution
Class (Subsidiary risk)	3
Packing group	II
Special provisions	A3

IMDG

UN number	1170
UN Proper shipping name	Ethanol solution
Class (Subsidiary risk)	3
Packing group	II
Environmental hazards	
Marine pollutant	No
Special provisions	144
EmS	F-E, S-D

Special precautions for user Read safety instructions, SDS, and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code This substance/mixture is not intended to be transported in bulk.

DOT hazard pictograms



IATA; IMDG hazard pictograms



SECTION 15: Regulatory information

US federal regulations

CERCLA Hazardous Substance (40 CFR 302.4)

<u>Chemical name</u>	<u>CAS number</u>	<u>Reportable Quantity</u>
Methanol	67-56-1	5000 lbs

SARA 302 Extremely Hazardous Substance (40 CFR 355 Appendices A / B)

Not regulated

SARA 304 Emergency Release Notification

Not regulated

SARA 311/312 Hazardous Chemical

<u>Chemical name</u>	<u>CAS number</u>
Ethanol	64-17-5
Methanol	67-56-1

SARA 313 (TRI reporting)

<u>Chemical name</u>	<u>CAS number</u>
Methanol	67-56-1

TSCA Section 8(b) Chemical Inventory

All components are on the U.S. EPA TSCA Inventory list.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs)

Not regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated

Clean Water Act, Toxic and Priority Pollutants (40 CFR 401.15 and CFR 423, Appendix A)

Not regulated

Safe Drinking Water Act (SDWA)

Not regulated

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (California Proposition 65)

<u>Chemical name</u>	<u>CAS number</u>
Methanol	67-56-1

WARNING: This product can expose you to methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Massachusetts Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Methanol	67-56-1

New Jersey Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ethanol	64-17-5
Methanol	67-56-1

Pennsylvania Worker and Community Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ethanol	64-17-5
Methanol	67-56-1

Rhode Island Right-to-Know Act

<u>Chemical name</u>	<u>CAS number</u>
Ethanol	64-17-5
Methanol	67-56-1

SECTION 16: Other information

NFPA Rating

Health hazard	2
Fire hazard	3
Reactivity	1
Specific	N/A

Disclaimer

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