


Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ASTM E407-74 2-5% Nital Etchant
Trade Name: Nital
Chemical Family: Flammable Liquids, Corrosive, n.o.s. (Denature Alcohol, Nitric Acid Mixture)
Part Number: ASTM74-(all sizes)
Manufacturer: Sturbridge Metallurgical Services Inc.
City, State, Zip Sturbridge MA 01566
Phone Number 508-347-5288
Emergency Phone: CHEMTREC 1-800-424-9300

Section 2: Hazard(s) Identification

<p>GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)</p>	<p>Flammable liquids (Category 2), H225 Oxidizing liquids (Category 3), H272 Acute toxicity, Oral (Category 4), H302 Skin corrosion (Category 1A), H314 Serious Eye damage (Category 1), H318 Specific target organ toxicity – single exposure (Category 1), H370 Acute aquatic toxicity (Category 2), H401</p>
<p>Pictograms</p>	
<p>Signal Word</p>	<p>Danger</p>
<p>Hazard Statements</p>	<p>H225-Highly Flammable liquid and vapor H272-May intensify fire: oxidizer H302-Harmful if swallowed H314-Causes severe skin burns and eye damage H318-Causes serious eye damage H370-Causes damage to organs H401-Toxic to aquatic life</p>
<p>Precautionary Statements</p>	<p>Preventions: P210- Keep away from heat/sparks/open flames/hot surfaces – No smoking. P220-Keep/Store away from clothing and combustible materials. P221-Take any precaution to avoid mixing with combustibles, strong bases, metallic powders, carbides, hydrogen sulfide, turpentine, and combustible organics. P233-Keep container tightly closed P243-Take precautionary measures against static discharge</p>

	<p>P260-Do not breathe dust/fume/gas/mist/vapors/spray P273 Avoid release to the environment P280-Wear protective gloves/clothing/eye/face protection</p> <p>Response: P301+P312: IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell. P303+P361+P353- IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower. P304+P340- IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing. P305+-P351+P338- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310- IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing. P312- Call a POISON CENTER or doctor/physician if you feel unwell. P321- Specific treatment (see Section 4 SDS). P330-P363- Wash contaminated clothing before reuse. P363- Avoid release to the environment. P370+P378- In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.</p> <p>Storage: P403+P235- Store in a well-ventilated place. Keep cool. P405- Store locked up.</p> <p>Disposal: P501- Dispose of contents/container to Federal, State and Local Regulations.</p>
<p>Other</p>	<p>HMIS Ratings: Health: 3 Flammability: 3 Reactivity: 2 Hazard Ratings: Least: 0 Slight: 1 Moderate: 2 High:3 Extreme: 4</p>

Section 3: Composition / Information on ingredients

Ingredient	CAS Number	% Concentration
Ethyl Alcohol	64-17-5	85-98
Methyl Alcohol	67-56-1	1-5
Isopropyl Alcohol	67-63-0	1-5
Nitric Acid	7697-37-2	1-8

Section 4: First-Aid Measures

Eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical aid immediately.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid immediately.
Skin contact:	Wash the areas of contact with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately.
Ingestion:	Do not induce vomiting. Rinse mouth. Get medical aid immediately.
Most important symptoms and effects, both acute and delayed:	Irritating to skin. Causes eye irritation. Contains Methyl Alcohol. Methanol can be absorbed through the skin producing systemic effects that include visual disturbances. Absorption through the skin may cause metabolic acidosis. Contains Methyl alcohol. Exposure to high concentrations of Methyl alcohol vapor can cause blurred vision, impaired vision or blindness. Contains Methyl alcohol which can cause metabolic acidosis when ingested or inhaled. Ingestion may cause significant visual disturbances including blindness since it contains Methyl alcohol. Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea. Abdominal pain. Central nervous system effects. Inhalation of vapors may cause dizziness or suffocation. May affect the liver. It may affect the kidneys. May affect respiration.

Section 5: Fire-Fighting Measures

Extinguishing media:	Dry chemical, foam, or carbon dioxide. Water may be ineffective.
Advice for firefighters / Special Information	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Water spray can be used to extinguish fires and cool fire-exposed containers. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.
Explosion:	Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated. Sensitive to static discharge.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources.
Environmental precautions:	Do not allow the material to be released to the environment without proper government permits.
Methods and materials for containment and cleaning up:	Use neutralizing agent. Absorb with liquid binding material (sand, diatomite, acid binder, universal binders, saw dust). Dispose contaminated material as waste according to section 13. Ensure adequate ventilation. Keep away from ignition sources.

Section 7: Handling and Storage

Precautions for safe handling	Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Open and handle container with care. Protect against electrostatic charges. Fume can combine with air to form an explosive mixture. Discard the container after 1 year.
Conditions for safe storage	Keep container tightly sealed. Store in an approved flammable liquid storage container/area.
Incompatibilities	Store away from oxidizing agents, strong bases, and reducing agents.
Specific Storage Requirement (s)	No information.

Section 8: Exposure Controls / Personal Protection

Component	OSHA PEL	ACGIH (TLV)
Denatured Alcohol	1000 ppm (TWA) for ethyl alcohol 400 ppm (TWA) for isopropyl alcohol 200 ppm (TWA) for methyl alcohol	1000 ppm (TWA), A4-not classifiable as human carcinogen for ethyl alcohol 200 ppm (TWA), 400 ppm (STEL, A4- not classifiable as human carcinogen for isopropyl alcohol. 200 ppm (TW), 250 ppm (STEL) skin, for methyl alcohol.
Nitric Acid	2 ppm (TWA)	2 ppm (TWA), 4 ppm (STEL)

Exposure Limits

Engineering Controls	Use general and/or local exhaust ventilation to control the vapor concentration.
Eye Protection	Wear safety glasses or goggles.
Skin Protection	Wear protective clothing and chemical resistant gloves.
Respiratory Protection	Use self-contained respiratory device in emergency situation.

Section 9: Physical and Chemical Properties

Appearance	Clear to pale yellow solution
Odor	Suffocating, acrid with whiskey-like odor.
Solubility	No information found
Density	No information found
pH	No information found
% Volatiles by volume @ 21C (70F):	100
Boiling Point	78C (172F) (ethanol)
Melting Point	-114C (-173F) (ethanol)
Vapor Density (Air=1)	1.6 (ethanol)
Vapor Pressure (mm Hg)	40 @ 19C (66F) (ethanol)
Evaporation Rate (BuAc=1)	ca. 1.4 (CCl4=1) (ethanol)

Section 10: Stability and Reactivity

Stability	Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products	Carbon dioxide and carbon monoxide may form along with toxic nitrogen oxides fumes and hydrogen nitrate when heated to decomposition.
Hazardous Polymerization	Will not occur.
Incompatibilities	Strong oxidants, silver salts, acid chlorides, alkali metals, metal hydrides, hydrazine, and many other substances. Strong bases, metallic powders, carbides, hydrogen sulfide, turpentine, and combustible organics.
Conditions to Avoid	Heat, flames, ignition sources and incompatibles.

Section 11: Toxicological Information

Nitric Acid	Investigated as a mutagen and reproductive effector. Other exposure effect: On the Skin: Strong corrosive effect. On the Eye: Strong corrosive effect. Sensitization: No sensitizing effects known. Additional toxicological information: To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known. No classification data on carcinogenic properties of this material is available from NTP, IARC or OSHA.
Ethyl Alcohol	Ethyl alcohol: oral rat LD50: 7060 mg/kg; inhalation rat LC50: 20,000 ppm/10H; Irritation data, eye, rabbit: 500 mg/24H moderate; Investigated as a tumorigen, mutagen, reproductive effector. Methyl alcohol: oral rat LD50: 5628 mg/kg; inhalation rat LC50: 64000 ppm/4H; skin rabbit LD50: 15800 mg/kg; Irritation data,skin,rabbit: 20 mg/24H, Moderate; Investigated as a tumorigen, mutagen, reproductive effector. Isopropyl alcohol: oral rat LD50: 5045 mg/kg; skin rabbit LD50: 12.8 gm/kg; inhalation, rat: 16,000 ppm 8 hr. Investigated as a mutagen, tumorigen, reproductive effector. Reproductive Toxicity: Ethanol has been linked to birth defects in humans. Carcinogenicity: Ethanol has been linked to cancer in humans. Chronic ethanol ingestion is associated with liver cancer. Most industrial ethanol contains denaturants that render it undesirable to drink.

-----\Cancer Lists\-----

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Nitric Acid (7697-37-2)	No	No	None
Water (7732-18-5)	No	No	None
Ethyl Alcohol (64-17-5)	No	No	None
Methyl Alcohol (67-56-1)	No	No	None
Isopropyl Alcohol (67-63-0)	No	No	3

Section 12: Ecological Information

Environmental Fate	Following data for ethanol: 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 water, this material is expected to readily biodegrade. When released into water, this material may evaporate to a moderate extent. This material is not expected to significantly bioaccumulate. 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.
Environmental Toxicity	This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

Section 13: Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transportation Information

<p>Domestic (Land, D.O.T.) ----- Proper Shipping Name: FLAMMABLE LIQUIDS, CORROSIVE, n.o.s. (Ethanol, Nitric Acid solution) Hazard Class: 3,8 UN/NA: UN 2924 Packing Group: II Label Codes: 3,8 Limited Quantity Shipment < 1 L</p> <p>NMFC: 45615-11 Shipping Class CL125</p>
<p>International (Air, I.C.A.O.) ----- Proper Shipping Name: FLAMMABLE LIQUIDS, CORROSIVE, n.o.s. (Ethanol, Nitric Acid solution) Hazard Class: 3,8 UN/NA: UN 2924 Packing Group: II Label Codes: 3,8</p>

Section 15: Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Nitric Acid (7697-37-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes
Ethyl Alcohol (64-17-5)	Yes	Yes	Yes	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	Yes	Yes
Isopropyl Alcohol (67-63-0)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	--Canada--			
	Korea	DSL	NDSL	Phil.
Nitric Acid (7697-37-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes
Ethyl Alcohol (64-17-5)	Yes	Yes	No	Yes
Methyl Alcohol (67-56-1)	Yes	Yes	No	Yes
Isopropyl Alcohol (67-63-0)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302		-SARA 313-	
	RQ	TPQ	List	Chemical Catg.
Nitric Acid (7697-37-2)	1000	1000	Yes	No
Water (7732-18-5)	No	No	No	No
Ethyl Alcohol (64-17-5)	No	No	No	No
Methyl Alcohol (67-56-1)	No	No	Yes	No
Isopropyl Alcohol (67-63-0)	No	No	Yes	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Nitric Acid (7697-37-2)	1000	No	No
Water (7732-18-5)	No	No	No
Ethyl Alcohol (64-17-5)	No	No	No
Methyl Alcohol (67-56-1)	5000	U154	No
Isopropyl Alcohol (67-63-0)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: Yes (Mixture / Liquid)

Australian Hazchem Code: 2PE and 2[S]E

Poison Schedule: S5, S6

Section 16: Other Information

Disclaimer: The information above is believed to be accurate and represents the best information currently available to us.

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