

RUST BLUE

Section 1: Product and Company Identification

RTV Enterprises, LLC
1901 West Evans Street
Florence, South Carolina 29501
Phone: 843-407-1179

Product Name: Rust Blue American*British*French
Damascus*German*Swedish*Swiss
Product Description: Gun bluing solution
Date of Revision: 8 July 2013

24-Hour Emergency Phone Number: (843) 621-3541 U.S. & Canada
Use only for spills and releases.
National Poison Control: (800) 222-1222

Section 2: Hazard Identification

Emergency Overview: Clear blue to green-blue liquid. Corrosive to eyes and skin.

OSHA Regulatory Status: This material is considered hazardous under 29 CFR 1910.

WHMIS Status: D2B, E

Classification:

Acute toxicity inhalation: dust, mist – Category 2

Acute toxicity oral: – Category 3

Skin corrosion/irritation – Category 1A

Serious eye damage/irritation – Category 1

Skin sensitization – Category 1

Germ cell mutagenicity – Category 1B

Toxic to reproduction – Category 1

Specific target organ toxicity following single exposure: (respiratory system, blood system, liver, nervous system, kidneys) – Category 1

Specific target organ following repeated/prolonged exposure (liver, tooth, respiratory system) – Category 1

Specific target organ following (repeated/prolonged exposure (nervous system) – Category 2

Corrosive to metals – Category 1

Hazardous to the aquatic environment, acute toxicity – Category 2

Hazardous to the aquatic environment, chronic toxicity – Category 2

Hazards not otherwise classified:

None

Label elements (and GHS Hazard and Precautionary codes):



DANGER

- H272 May intensify fire; oxidizer
H301 Toxic if swallowed
H330 Fatal if inhaled
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H340 May cause genetic defects
H360 May damage fertility or the unborn child
H370 Causes damage to organs (respiratory system, blood system, liver, nervous system, kidneys)
H372 Causes damage to organs (liver, tooth, respiratory system, nervous system) through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

Precautionary Statement(s):

- P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P281 Use personal protective equipment as required.
P284 Wear respiratory protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352 IF ON SKIN: wash with plenty of soap and water.
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.
P307+P311 IF exposed: call a POISON CENTER or doctor/physician.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER or doctor/physician.
P314 Get medical advice/attention if you feel unwell.
P330 Rinse mouth.
P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.

P370+P378	In case of fire: Use water jet, CO ₂ , foam for extinction.
P391	Collect spillage. Hazardous to the aquatic environment
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to authorized disposal agency.

Section 3: Composition / Information On Ingredients

Component	Common Names, Synonyms	CAS #	Weight %
Nitric acid	Hydrogen nitrate, Aqua fortis, HNO ₃	7697-37-2	1 – 5
Ferric chloride	Iron (III) chloride	7705-08-0	0.5 – 1.5
Ethanol	Ethyl alcohol, grain alcohol	64-17-5	5 – 10
Copper sulfate	Cupric sulfate, copper (II) sulfate	7758-98-7	3 – 7
Deionized water	Demineralized water, IX water, RO water	7732-18-5	75 – 88

Non-hazardous components may or may not be listed. Carcinogens are listed when present at 0.1% or more; components which are otherwise hazardous according to OSHA are listed when present at 1.0% or more. This is not intended to be complete compositional disclosure. See Section 15 for applicable states right to know and other regulatory information.

Section 4: First Aid Measures

4.1 Necessary first aid

Inhalation: If inhaled, will cause difficult breathing or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. GET PROMPT MEDICAL ATTENTION.

Ingestion: DO NOT INDUCE VOMITING. Drink large amounts of water to dilute acid. GET PROMPT MEDICAL ATTENTION.

Skin Contact: Remove contaminated shoes and clothing and flush affected areas with plenty of water. If irritation or redness develops, seek medical attention. Wash any contaminated clothing before reuse.

Eye Contact: Flush eyes with plenty of water for 15 minutes, lifting lower and upper eyelids occasionally.

4.2 Most important symptoms/effects, acute and delayed

Ingestion: Can cause irritation and severe corrosive burns to mouth, throat, and stomach, and may be fatal if swallowed. **Inhalation:** Gases or acid mist can cause severe irritation or corrosive burns to the upper respiratory system, including nose, mouth, and throat. Lung irritation, nitrogen oxide poisoning, and pulmonary edema can also occur. May cause severe breathing difficulties which may be delayed in onset. **Skin:** Can cause severe corrosive burns or irritation. May stain the skin bright yellow. **Eyes:** Can cause irritation, corneal burns, conjunctivitis, and may cause blindness.

4.3 Indication of immediate medical attention and special treatment needed, if necessary: Nitric Acid vapors contain nitrogen oxides. Acute overexposure by inhalation can result in delayed pulmonary edema. Observe affected patients for delayed effects up to 48 hours after exposure. Screen patients with chest x-ray, arterial blood gas, methemoglobinemia level, and pulmonary function tests. Bronchiolitis obliterans may develop weeks after exposure.

Other Comments: None

Section 5: Fire Fighting Measures

5.1 Suitable extinguishing media: Not flammable, use media appropriate for surrounding fire.

5.2 Specific hazards arising from the chemical: Hazardous combustion products include carbon oxides (CO₂, CO), organic acids and aldehydes, copper oxides, iron oxides, nitrogen oxides (NO, NO₂, N₂O), sulfur oxides (SO₂, SO₃) and hydrogen chloride.

5.3 Special protective actions for fire-fighters: 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.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Safety glasses and gloves

For emergency responders: Safety glasses, goggles or full face shield; gloves

6.2 Environmental precautions: Do not flush to environment or septic system

6.3 Methods and materials for containment and cleaning up

Containment techniques: Not applicable

Clean up procedures: Always use impervious rubber gloves for handling. Commercial acid spill kit is best choice for cleaning up. Alternatively, paper towels or newspapers can be used for absorbing liquid. Place wetted materials in a non-metallic container for disposal. Neutralize area with sodium bicarbonate (baking soda) solution.

Section 7: Handling and Storage

7.1 Precautions for safe handling: Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Keep container closed except during use.

Use only with adequate ventilation.

Provide emergency safety shower near work area.

Provide emergency eye-wash station near work area.

Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

7.2 Conditions for safe storage, including any incompatibilities:

Store in tightly closed containers in cool, dry, well-ventilated area away from heat, sources of ignition and incompatibles.

Store at ambient or lower temperature.

Store out of direct sunlight.

Keep containers tightly closed and upright when not in use.

Protect against physical damage.

Section 8: Exposure Control / Personal Protection

8.1 Control parameters:

Component	CAS #	OSHA PEL	ACGIH TLV	NIOSH REL
Nitric acid	7697-37-2	2 ppm TWA	2 ppm TWA 4 ppm ST	2 ppm TWA 4 ppm ST
Ferric chloride	7705-08-0	None established	100 ppm TWA	None established
Ethanol	64-17-5	1000 ppm TWA	1000 ppm TWA	1000 ppm TWA 3300 ppm IDLH
Copper sulfate	7758-98-7	None established	None established	None established
Deionized water	7732-18-5	None established	None established	None established

8.2 Appropriate Engineering Controls: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

8.3 Individual protection measures, including Personal Protective Equipment:

- (a) **Eye/face protection:** Use chemical safety goggles and/or full face shield where misting or splashing of liquids is possible. Maintain eye wash fountain in work area.
- (b) **Skin Protection:** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Nitrile or butyl rubber gloves provide suitable protection. A quick-drench shower should be available in the work area.
- (c) **Respiratory Protection:** Use NIOSH-approved vapor respirator if exposure is unknown or exceeds permissible limits. A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.
- (d) **Thermal Hazards:** None present

Section 9: Physical and Chemical Properties

Appearance: Clear blue to blur-green liquid**Odor:** Mild**Odor Threshold:** Not applicable**pH:** 1.0 or less**Melting point/freezing point:** Not available**Initial boiling point and boiling range:** Not available**Flash point:** Not applicable**Evaporation rate:** Not applicable**Flammability:** Not flammable**Upper/lower flammability or explosive limits:** Not applicable**Vapor pressure:** Not applicable**Vapor density (air=1):** Not available

Relative density (water=1): 1.1

Solubility in water: Complete

Partition coefficient (n-octanol/water): Not known

Auto-ignition temperature: Not applicable

Decomposition temperature: Not available

Viscosity: Not available

Section 10: Stability and Reactivity

Hazardous Decomposition Products: Carbon oxides (CO₂, CO), organic acids and aldehydes, copper oxides, iron oxides, nitrogen oxides (NO, NO₂, N₂O), sulfur oxides (SO₂, SO₃).

10.1 Reactivity: Reacts with metals and bases

10.2 Chemical Stability: This product is stable in closed containers at room temperature.

10.3 Possibility of hazardous reactions: No reactive materials together

10.4 Conditions to Avoid: Heat, flame, direct sunlight

10.5 Incompatible materials: Metals, reducing agents, strong bases

10.6 Hazardous Decomposition Products: None known

Section 11: Toxicological Information

Acute toxicity: Fatal if inhaled. Toxic if swallowed.

Oral: Nitric acid: Rat LD₅₀: >90 mL/kg; Copper sulfate: Rat LD₅₀: 300 mg/kg; Ferric chloride: Rat LD₅₀: 316 mg/kg; Ethanol: Rat LD₅₀: 7000 mg/kg

Inhalation: Nitric acid: Rat LC₅₀: 130 mg/m³/4Hr; Ethanol: Rat LC₅₀: 124 g/m³/1 Hr

Skin corrosion/irritation: Causes severe skin burns and eye damage

Ferric chloride: Rabbit: Irritating to skin

Serious eye damage/irritation: Causes severe eye irritation.

Ferric chloride: Rabbit Severe eye irritation

Respiratory or skin sensitization: May be a skin sensitizer.

Germ cell mutagenicity: May cause genetic defects.

Carcinogenicity: No component listed by ACGIH, IARC, NTP, or CA Prop 65.

Reproductive toxicity: May damage fertility or the unborn child

Specific target organ toxicity following single exposure: Causes damage to organs (respiratory system, blood system, liver, nervous system, kidneys).

Specific target organ toxicity following prolonged or repeated exposure: Causes damage to organs (tooth, respiratory system, nervous system) through prolonged or repeated exposure.

Aspiration hazard: Not classified

Section 12: Ecological Information

12.1 Toxicity: Very toxic to aquatic organisms with long-lasting effects.

Copper sulfate: LC₅₀ Rainbow trout (*Oncorhynchus mykiss*): 0.1 – 2.5 mg/L, 96 Hr

Ferric chloride: LC₅₀ Fathead minnow (*Pimephales promelas*) - 21.84 mg/l - 96 Hr; EC₅₀ Water flea (*Daphnia magna*) - 9.6 mg/l - 48 Hr

12.2 Persistence and degradability: None

12.3 Bioaccumulative potential: This product is not expected to bioaccumulate.

12.4 Mobility in soil: No information available

12.5 Other adverse effects: No information available

Section 13: Disposal Considerations

13.1 Disposal methods: Not applicable

13.2 Containers and methods: Not applicable

13.3 Physical chemical considerations: As a waste, this material IS considered a HAZARDOUS WASTE under RCRA (29 CFR 261). It should be considered first under the characteristic of Corrosivity, D002

13.4 Sewage disposal: Not applicable

13.5 Special precautions for incineration or landfill: Not applicable

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal 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: Transport Information

14.1 UN Number : UN3264

14.2 Proper Shipping Name: Corrosive liquids, inorganic, n.o.s. (Nitric acid)

14.3 Transport Hazard Classes: 8

Label: 8

EMS: F-C, S-V

14.4 Packing Group: III

Packing Instructions: IATA: 818, Y818; IMDG: P001, LP01

14.5 Environmental hazards: None
Marine Pollutant: Yes (Copper sulfate)

14.6 Special precautions for user: None

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

CERCLA Reportable Quantity (RQ): Copper sulfate, 10 lbs; Nitric acid, 1000 lbs; Ferric chloride 1000 lbs.

This product in small packages (5L or less) qualify for Limited Quantity shipping rules as given in 173.154(a)(2), providing relief from specification packaging and placarding requirements for ground shipments.

This data provided for information only. The description shown may not apply to all shipping situations. Consult 49 CFR, or appropriate regulations to properly classify your shipment for transportation.

Section 15: Regulatory Information

TSCA Chemical Inventory: All of the chemicals in this product are listed on the TSCA Inventory.

TSCA Sec 4 Chemical Test Rule: None of the chemicals in this product are under a Chemical Test Rule.

TSCA Sec 8(d): None of the chemicals in this product are on the Health and Safety Reporting List.

TSCA Sec 12(b) Notices of Export: None of the chemicals in this product are on this list.

TSCA Significant New Use Rule (SNUR): None of the chemicals in this product are on this list.

SARA Sec 302 (EHS) TPO: Nitric acid, 1000 lbs

SARA Sec 302 (EHS) RQ: Copper sulfate, 10 lbs; Nitric acid, 1000 lbs; Ferric chloride 1000 lbs.

SARA Sec 311/312: Acute – Yes; Chronic – Yes; Fire – No; Release of Pressure – No; Reactivity – Yes

SARA 313 List: The following chemicals in this product are reportable under Section 313 Title III and 40 CFR Part 372 when present above 1.0 wt%: Nitric acid, Copper sulfate

CERCLA Hazardous Substances and corresponding RQs: Copper sulfate, 10 lbs; Nitric acid, 1000 lbs; Ferric chloride 1000 lbs.

RCRA: D002, Corrosivity

	Clean Air Act			Clean Water Act		
	Hazardous Air Pollutant	Class 1 Ozone Depletor	Class 2 Ozone Depletor	Hazardous Substance	Priority Pollutant	Toxic Pollutant
7697-37-2	No	No	No	YES	No	No
7705-08-0	No	No	No	YES	No	No
64-17-5	No	No	No	No	No	No
7758-98-7	No	No	No	No	No	No
7732-18-5	No	No	No	No	No	No

Chemical Weapons Convention: None of the chemicals in this product are on this list.

Drug Enforcement Agency (DEA) CDTA: None of the chemicals in this product are on this list.

OSHA: Nitric acid in the product is considered Highly Hazardous by OSHA.

State Right-to-Know Lists:

	CA	FL	MA	MN	NJ	NY	PA	RI
7697-37-2	YES	No	YES	YES	YES	No	YES	No
7705-08-0	YES	No	YES	No	YES	No	YES	No
64-17-5	YES	No	YES	YES	YES	No	YES	No
7758-98-7	YES	No	YES	No	YES	No	YES	No
7732-18-5	No	No	No	No	No	No	No	No

California Proposition 65: Warning: WARNING: This product contains Ethanol, a chemical known to the state of California to cause developmental reproductive toxicity.

Canadian: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations. The components in this product are listed, or exempt from listing, on the Canadian Domestic Substances List.

WHMIS Classification: D2B, E

Section 16: Other Information

Abbreviations and acronyms used:

ACGIH	American Conference of Governmental Industrial Hygienists	NA	not applicable, not available
ANSI	American National Standards Institute	NIOSH	National Institute for Occupational Safety and Health
atm	atmosphere (pressure unit)	ND	not determined
BOD	biological oxygen demand	NFPA	National Fire Prevention Association
CAS	Chemical Abstracts Service	NTP	National Toxicology Program
CC	closed cup	OC	open cup
CDTA	Chemical Drug and Trafficking Act	OSHA	Occupational Safety and Health Administration
COC	Cleveland Open Cup	Part	partition
COD	chemical oxygen demand	PEL	permissible exposure limits
CFR	Code of Federal Regulations	ppb	parts per billion
CPR	cardio-pulmonary resuscitation	PPE	personal protective equipment
DEA	Drug Enforcement Agency	ppm	parts per million
DOT	Department of Transportation	psi	pounds per square inch
EINECS	Euorpean Inventory of Existing Commercial Chemical Substances	RCRA	Resource Conservation and Recovery Act
FDA	Food and Drug Administration	RQ	Reportable quantity
IARC	Internat'l Agency for Research on Cancer	RTK	Right to Know
IDLH	immediate danger to life and health	SARA	Superfund Amendments and Reauthorization Act
kg	kilogram	STEL	short-term exposure limit
L	liter	TCC	Tagliabue Closed Cup
LC50	median lethal concentration	TPQ	threshold planning quantity
LD50	median lethal dose	TQ	threshold quantity
LEL	lower explosive limit	TSCA	Toxic Substances Control Act
mg	milligram	TWA	time-weighted average
mL	milliliter	UEL	upper explosive limit

This document was prepared in accordance with 29 CFR 1910.1200 and ANSI Z400.1-2010.

Prepared by Douglas R. Chrisope on 8 July 2013.

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