

## 1. Product and Company Identification

<b>Product identifier</b>	<b>Vital-Flo Tankless Water Heater Descaler (4387-02, 4387-01)</b>
<b>Other means of identification</b>	Not available
<b>Recommended use</b>	Cleaning scale from tankless water heaters
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer</b>	
<b>Company name</b>	Nu-Calgon
<b>Address</b>	2008 Altom Court St. Louis, MO 63146 United States
<b>Telephone</b>	314-469-7000 / 800-554-5499
<b>E-mail</b>	info@nucalgon.com
<b>Emergency phone number</b>	1-800-424-9300 (CHEMTREC)

## 2. Hazards Identification

<b>Physical hazards</b>	Corrosive to metals	Category 1
<b>Health hazards</b>	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	

**Label elements**



<b>Signal word</b>	Danger
<b>Hazard statement</b>	Causes severe skin burns and eye damage. May be corrosive to metals.
<b>Precautionary statement</b>	
<b>Prevention</b>	Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Keep only in original container.
<b>Response</b>	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see this label). Absorb spillage to prevent material damage.
<b>Storage</b>	Store locked up. Store in corrosive resistant container with a resistant inner liner.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	Not applicable.

## 3. Composition/Information on Ingredients

**Mixtures**

Chemical name	Common name and synonyms	CAS number	%
Phosphoric acid		7664-38-2	75

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#### 4. First Aid Measures

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<b>Inhalation</b>	If inhaled: Remove person to fresh air and keep comfortable for breathing.
<b>Skin contact</b>	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
<b>Eye contact</b>	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>Ingestion</b>	If swallowed: Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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#### 5. Fire Fighting Measures

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<b>Suitable extinguishing media</b>	Treat for surrounding material.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.

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#### 6. Accidental Release Measures

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<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. 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 protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	This product is miscible in water. Stop the flow of material, if this is without risk. Should not be released into the environment.  Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
<b>Environmental precautions</b>	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

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#### 7. Handling and Storage

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<b>Precautions for safe handling</b>	Avoid contact with eyes, skin and clothing. Do not breathe mist or vapor. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.
<b>Conditions for safe storage, including any incompatibilities</b>	Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure Controls/Personal Protection

### Occupational exposure limits

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

Components	Type	Value
Phosphoric acid (CAS 7664-38-2)	PEL	1 mg/m <sup>3</sup>

#### US. ACGIH Threshold Limit Values

Components	Type	Value
Phosphoric acid (CAS 7664-38-2)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Phosphoric acid (CAS 7664-38-2)	STEL	3 mg/m <sup>3</sup>
	TWA	1 mg/m <sup>3</sup>

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### 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. Eye wash facilities and emergency shower must be available when handling this product. Provide eyewash station.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin protection

##### Hand protection

Wear appropriate chemical resistant gloves.

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory protection

Where exposure guideline levels may be exceeded, use an approved NIOSH respirator. Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and Chemical Properties

Appearance	Clear
Physical state	Liquid.
Form	Liquid. Liquid
Color	Colorless
Odor	Odorless
Odor threshold	Not available.
pH	< 1 (concentrate)
Melting point/freezing point	Not available.
Initial boiling point and boiling range	500 °F (260 °C)
Pour point	Not available.
Specific gravity	1.584
Partition coefficient (n-octanol/water)	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable.

**Upper/lower flammability or explosive limits**

<b>Flammability limit - lower (%)</b>	Not available
<b>Flammability limit - upper (%)</b>	Not available
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	0.03 mmHg
<b>Vapor density</b>	Not available
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Complete
<b>Auto-ignition temperature</b>	Not available
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.

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## 10. Stability and Reactivity

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<b>Reactivity</b>	Reacts vigorously with alkaline material or metals.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Reacts violently with strong alkaline substances. This product may react with reducing agents. Do not mix with other chemicals. Contact with incompatible materials.
<b>Incompatible materials</b>	This product may react with reducing agents. Do not mix with other chemicals.
<b>Hazardous decomposition products</b>	May include and are not limited to: Oxides of phosphorus. Hydrogen gas.

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## 11. Toxicological Information

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**Information on likely routes of exposure**

<b>Ingestion</b>	Causes digestive tract burns.
<b>Inhalation</b>	May cause irritation to the respiratory system.
<b>Skin contact</b>	Causes severe skin burns.
<b>Eye contact</b>	Causes serious eye damage.

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

**Information on toxicological effects****Acute toxicity**

<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Phosphoric acid (CAS 7664-38-2)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	2740 mg/kg
<i>Inhalation</i>		
LC50	Not available	
<i>Oral</i>		
LD50	Rat	1530 mg/kg

**Skin corrosion/irritation** Causes severe skin burns and eye damage.

<b>Exposure minutes</b>	Not available.
<b>Erythema value</b>	Not available.
<b>Oedema value</b>	Not available.

**Serious eye damage/eye irritation** Causes serious eye damage.

<b>Corneal opacity value</b>	Not available.
<b>Iris lesion value</b>	Not available.

<b>Conjunctival reddening value</b>	Not available.
<b>Conjunctival oedema value</b>	Not available.
<b>Recover days</b>	Not available.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not available.
<b>Skin sensitization</b>	This product is not expected to cause skin sensitization.
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, NTP, or OSHA.
<b>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	
	Not listed.
<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not available.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.
<b>Further information</b>	Not available.

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## 12. Ecological Information

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<b>Ecotoxicity</b>	Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Mobility in general</b>	Not available.
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

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## 13. Disposal Considerations

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<b>Disposal instructions</b>	This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

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## 14. Transport Information

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### U.S. Department of Transportation (DOT)

#### Basic shipping requirements:

<b>UN number</b>	UN1805
<b>Proper shipping name</b>	Phosphoric acid solution
<b>Hazard class</b>	Limited Quantity - US
<b>Packing group</b>	III
<b>Special provisions</b>	A7, IB3, N34, T4, TP1

### Transportation of Dangerous Goods (TDG - Canada)

#### Basic shipping requirements:

<b>UN number</b>	UN1805
<b>Proper shipping name</b>	PHOSPHORIC ACID, LIQUID
<b>Hazard class</b>	Limited Quantity - Canada
<b>Packing group</b>	III

**IATA/ICAO (Air)**

**Basic shipping requirements:**

**UN number** UN1805  
**Proper shipping name** Phosphoric acid, solution  
**Hazard class** Limited Quantity - IATA  
**Packing group** III

**IMDG (Marine Transport)**

**Basic shipping requirements:**

**UN number** UN3264  
**Proper shipping name** PHOSPHORIC ACID SOLUTION  
**Hazard class** Limited Quantity - US  
**Packing group** III

**DOT; IMDG; TDG**



**IATA**



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**15. Regulatory Information**

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**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Phosphoric acid (CAS 7664-38-2) Listed.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance** Yes

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)**  
Not regulated.

**Other federal regulations**

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

Not regulated.

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

Not regulated.

**Clean Water Act (CWA)  
Section 112(r) (40 CFR  
68.130)** Hazardous substance

**Safe Drinking Water Act  
(SDWA)** Not regulated.

**Food and Drug  
Administration (FDA)** Not regulated.

**US state regulations** California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**US - California Hazardous Substances (Director's): Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**US - Illinois Chemical Safety Act: Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US - Louisiana Spill Reporting: Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US - Minnesota Haz Subs: Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US - New Jersey RTK - Substances: Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US - New York Release Reporting: Hazardous Substances: Listed substance**

Phosphoric acid (CAS 7664-38-2) Listed.

**US. Massachusetts RTK - Substance List**

Phosphoric acid (CAS 7664-38-2) Listed.

**US. Pennsylvania RTK - Hazardous Substances**

Phosphoric acid (CAS 7664-38-2) Listed.

**US. Rhode Island RTK**

Phosphoric acid (CAS 7664-38-2) Listed.

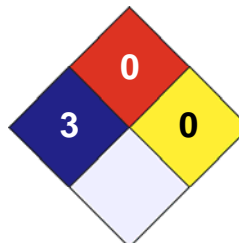
Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

**16. Other Information**

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

<b>HEALTH</b>	/ 3
<b>FLAMMABILITY</b>	0
<b>PHYSICAL HAZARD</b>	0
<b>PERSONAL PROTECTION</b>	X



**Disclaimer**

Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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**Further information**

For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

**Prepared by**

Nu-Calgon Technical Service Phone: (314) 469-7000