SAFETY DATA SHEET

Section 1 - Identification

Product Identifier
TWISTER™ Mineral Deposit / Grout Film Remover RTU (1-5)
Other means of identification
2517 (1-5)
Recommended use
Mineral Deposit / Cement Film Remover
Recommended restrictions
For commercial and industrial use only.

Manufacturer / Importer / Supplier / Distributor Information
Company Name
National Chemical Laboratories of PA, Inc.
Address
401 N. 10th Street - Philadelphia, PA 19123
Telephone
1 (215) 922-1200
Supplier Email
info@nclonline.com
Contact
CHEM-TEL
Emergency Phone
1 (800) 255-3924

Section 2 - Hazard(s) Identification

SDS Hazards and Warnings are based on the undiluted product. Refer to diluted SDS for Ready-To-Use Hazards and Warnings.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Hazards</td>
<td>Not Classified</td>
</tr>
<tr>
<td>Health Hazards</td>
<td>Serious eye damage/eye irritation 1</td>
</tr>
<tr>
<td>OSHA defined hazards</td>
<td>Not Classified.</td>
</tr>
<tr>
<td>Label Elements</td>
<td>Hazard Symbol</td>
</tr>
<tr>
<td>Hazard(s) not otherwise classified (HNOC)</td>
<td>None known.</td>
</tr>
</tbody>
</table>

Signal Word
Danger

Hazard Statement
Causes severe skin burns and eye damage. May cause respiratory irritation.

Precautionary statement
Prevention
Keep only in original container. Use only in a well-ventilated area. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response
If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing.

Storage
Store locked up. Store in corrosive resistant container with a resistant inner liner

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition/Information on ingredients

Mixture
Hazardous Components
Ingredient Name | CAS # | %
Hydrochloric Acid | 7647-01-1 | 0.1 - 2

Section 4 - First-aid Measures

Inhalation
If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center if symptoms develop or persist.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately

Ingestion
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
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**Section 5 - Fire-fighting measures**

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>RTU product will not support combustion. Water fog. Foam. Carbon dioxide (CO2).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>Do not use water jet as an extinguisher, as this will spread the fire.</td>
</tr>
<tr>
<td>Specific hazards arising from the chemical</td>
<td>During fire, Corrosive vapors and gases hazardous to health may be formed.</td>
</tr>
<tr>
<td>Special protective equipment and precautions for firefighters</td>
<td>Self-contained breathing apparatus and full protective clothing must be worn in case of fire.</td>
</tr>
<tr>
<td>Fire-fighting equipment /instructions</td>
<td>Move containers from fire area if you can do it without risk.</td>
</tr>
<tr>
<td>General fire hazards</td>
<td>No unusual fire or explosion hazards noted.</td>
</tr>
<tr>
<td>Specific Methods</td>
<td>Use standard firefighting procedures and consider the hazards of other involved materials.</td>
</tr>
</tbody>
</table>

**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 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. |
| Methods and materials for containment and cleaning up | This product is miscible in water. Should not be released into the environment. Large Spills: Stop the flow of material, if this is without risk. 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. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. |
| Environmental precautions | Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. |

**Section 7 - Handling and storage**

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

**Section 8 - Exposure control/personal protection**

| Occupational exposure limits | No biological exposure limits noted for the ingredient(s). |
| US. ACGIH Threshold Limit Values | 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. |
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Appropriate engineering controls | If use of product risks exposure to contact, wear safety glasses with side shields. |
| Individual protection measures, such as personal protective equipment | Impervious gloves are recommended for prolonged use. |
| Skin protection | If use of product risk exposure to contact, wear suitable protective clothing. |
| Other | In case of insufficient ventilation, wear suitable respiratory equipment. No personal respiratory protective equipment normally required if used with adequate ventilation. |
| Respiratory protection | Wear appropriate thermal protective clothing, when necessary. |
| Thermal hazards | If use of product risks exposure to contact, wear safety glasses with side shields. |

**Section 4 - First-aid measures**

**Most Important symptoms/effects, acute and delayed attention and special treatment**

| General information | Burn 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. May cause respiratory irritation. 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. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

| Section 1 - Identification and references | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |
| Section 2 - Hazards identification | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |
| Section 3 - Composition and information on ingredients | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |
| Section 4 - First-aid measures | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

**Section 5 - Fire-fighting measures**

| Suitable extinguishing media | RTU product will not support combustion. Water fog. Foam. Carbon dioxide (CO2). |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | During fire, Corrosive vapors and gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Fire-fighting equipment /instructions | Move containers from fire area if you can do it without risk. |
| General fire hazards | No unusual fire or explosion hazards noted. |
| Specific Methods | Use standard firefighting procedures and consider the hazards of other involved materials. |

**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 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. |
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| Conditions for safe storage, including any incompatibilities | Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). |

**Section 8 - Exposure control/personal protection**

| Occupational exposure limits | No biological exposure limits noted for the ingredient(s). |
| US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) | 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. |
| Biological limit values | No biological exposure limits noted for the ingredient(s). |
| Appropriate engineering controls | If use of product risks exposure to contact, wear safety glasses with side shields. |
| Individual protection measures, such as personal protective equipment | Impervious gloves are recommended for prolonged use. |
| Skin protection | If use of product risk exposure to contact, wear suitable protective clothing. |
| Other | In case of insufficient ventilation, wear suitable respiratory equipment. No personal respiratory protective equipment normally required if used with adequate ventilation. |
| Respiratory protection | Wear appropriate thermal protective clothing, when necessary. |

**Section 4 - First-aid measures**

| Most Important symptoms/effects, acute and delayed attention and special treatment | 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. May cause respiratory irritation. 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. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

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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.

Section 9 - Physical and chemical properties

Appearance
- Physical state: Liquid.
- Form: Clear, thin liquid.
- Color: Colorless.
- Odor: Slight, irritating odor.
- Odor threshold: Not available.
- pH: <1
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: 212 °F (100 °C)
- Flash point: None to boiling.
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Relative density: 1.01 ± 0.01
Relative density temperature: 75 °F (23.9 °C)
Solubilities (water): Completely soluble
Partition Coefficient n-octanol/water: Not available.
Auto-ignition temperature: Not Available.
Decomposition temperature: Not Available.
Viscosity: < 10 cSt
Viscosity Temperature: 75 °F (23.9 °C)

Section 10 - Stability and reactivity

Reactivity: Reacts violently with strong alkaline substances. This product may react with reducing agents.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to Avoid: Do not mix with other chemicals. Contact with incompatible materials.
Hazardous Decomposition Products: Hydronen chloride.

Section 11 - Toxicological information

Components
- Level: Acute
- Type: Dermal
- Code: LD50
- Species: Rabbit
- Results: LD50 >5010 mg/kg
- Level: Acute
- Type: Oral
- Code: LD50
- Species: Rat
- Results: LD50 700 mg/kg

Information on likely routes of exposure
- Ingestion: Causes digestive tract burns.
- Inhalation: May cause irritation to the respiratory system.
- Skin contact: Causes severe skin burns.
- Eye contact: 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: May be harmful if swallowed.
- Skin corrosion/irritation: Causes severe skin burns and eye damage.
- Serious eye damage/ eye irritation: Causes serious eye damage.
- Respiratory sensitization: Not a respiratory sensitizer.
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Skin sensitization: This product is not expected to cause skin sensitization.
Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure: Not classified.
Specific target organ toxicity - repeated exposure: Not classified.
Aspiration hazard: Not an aspiration hazard.
Chronic effects: Prolonged inhalation may be harmful.

Section 12 - Ecological Information

Ecotoxicity: Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Component(s)
Hydrochloric Acid, 7647-01-1

Aquatic
Level Type Code Species Test Results
Acute Fish LC50 Leuciscus idus 862 mg/l, 48 hours

Persistency and degradability: No data is available on the degradability of this product.
Bioaccumulative potential: Not established.
Mobility in soil: No data available.
Mobility in general: No data available.
Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13 - Disposal considerations

Disposal instructions: Dispose in accordance with applicable federal, state, and local regulations.
Local disposal regulations: Dispose of in accordance with local regulations.
Hazardous waste code: Waste codes should be assigned by the user based on the application for which the product was used.
Waste from residues / unused products: Dispose in accordance with all applicable regulations.
Contaminated packaging: Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Section 14 - Transport information

General Information: This product is customer diluted for on site use only. No transportation information is anticipated or provided. The regulatory transport classification of the product without consideration to dilution strength, packaging, quantity, or modal restrictions and exceptions cannot be anticipated. It is the user's responsibility to determine the appropriate packaging and modal requirements and/or limitations for the product quantity being shipped.

Section 15 - Regulatory Information

US federal regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.
CERCLA Hazardous Substance List (40 CFR 302.4):
Components Result
Hydrochloric Acid (CAS 7647-01-1) 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: Yes

SARA 302 Extremely hazardous substance
Chemical name CAS # Reportable Threshold Planning Threshold Planning Threshold Planning
Hydrochloric Acid 7647-01-1 5000 quantity, lower value
500 quantity, upper value
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SARA 311/312 Hazardous chemical
Yes
SARA 313 (TRI reporting)

Chemical name
Hydrochloric Acid
CAS #
7647-01-1
% by wt.
0.1 - 2

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HSPs) List
Components
Hydrochloric Acid (CAS 7647-01-1)

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

Drug Enforcement Administration (DEA), List 1
Components
Hydrochloric Acid (CAS 7647-01-0)  20 %WV

Exempt Chemical Mixtures (21 CFR 1310.12(c))

DEA Exempt Chemical Mixtures Code Number
Hydrochloric Acid (CAS 7647-01-0)  6545

Clean Drinking Water Act (SDWA)
Not regulated.

Food and Drug Administration (FDA)
Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Components
Hydrochloric Acid (CAS 7647-01-1)

US. New Jersey Worker and Community Right-to-Know Act
Components
Hydrochloric Acid (CAS 7647-01-1)

US. Pennsylvania RTK - Hazardous Substances
Components
Hydrochloric Acid (CAS 7647-01-1)

US. Rhode Island RTK
Components
Hydrochloric Acid (CAS 7647-01-1)

US. California Proposition 65
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory Name</th>
<th>On Inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances</td>
<td>Yes</td>
</tr>
<tr>
<td>United States Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

*A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Section 16 - Other information, including date of preparation or last version

Revision date
1/17/2018

Version #
02

Disclaimer
The information contained herein was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond the manufacturer's control, it is the user's responsibility to determine safe conditions for use of this product and to assume liability for loss, injury, damage or expense arising from the product's improper use. No warranty, expressed or implied, regarding the product described herein shall be created by or inferred from any statement or omission in this SDS. Various government agencies may have specific regulations concerning the transportation, handling, storage, use or disposal of this product which may not be reflected in this SDS. The user should review these regulations to ensure full compliance.