

# **Multi-Clean<sup>®</sup>**

## **METHOD BULLETIN 1425**

*Preparation, application and maintenance procedures for use with the Multi-Clean Line of waterbase concrete coatings.*

**TCS-1**

**Constant Shield:**

**LD-1000**

**EZ-2000**

**HD-3000**

**Decorative HD-3000**



# STOP - READ BEFORE PROCEEDING

This methods bulletin is to be used **only** by appropriately trained persons in conjunction with such training. **IMPROPER USE OR OPERATION OF THE MULTI-CLEAN (CHEMICALS OR EQUIPMENT) POSES RISK OF PHYSICAL INJURY OR PROPERTY DAMAGE.** Specific risks include, but are not limited to, burns, and improper application of chemical products (e.g. wrong product, wrong product combinations, improper applicator use, and improper curing.) Because successful and safe application is the responsibility and obligation of the trained applier, the manufacturer disclaims any and all warranties, express or implied, including warranties of **MERCHANTABILITY** or **FITNESS OF PURPOSE.** The manufacturer shall have no obligation except to replace repair, or pay for, in its sole discretion, any chemical product or equipment shown to be defective.

No person has authority to waive these disclaimers or make any representations or warranties on behalf of the manufacturer, except in writing signed by the manufacturer.

If you have not had training with the particular product or equipment you intend to use, please call:

**Multi-Clean at (651) 481-1900** to arrange training.

DO NOT USE THIS MULT-CLEAN SYSTEM OR ITS COMPONENT PRODUCTS WITHOUT APPROPRIATE TRAINING. FOR INDOOR USE ONLY.

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## Conventional Floor Finishes on Concrete

Multi-Clean manufactures a full line of high performance floor finishes. These finishes are most commonly used on vinyl flooring. However, there are times when a conventional floor finish may be desired on concrete. A floor finish is easy to maintain and a high gloss can be developed with burnishing. If removal is desired, the floor finish is easily stripped from the floor using a conventional floor finish stripper. One of the keys to success is preparing the surface and applying a special bonding primer (TCS-1) to the surface before application of finish to avoid premature wear and powdering problems often associated with poor adhesion.

The procedures on this page are for those that want to apply Multi-Clean floor finishes on concrete floors. These methods also apply to acid stained floors.

### Preparation

1. Floors to be coated must be clean. Scrub floors with a degreaser (Formula 340, Red Lightning, Blue Blazes). DO NOT use Formula 340 on floors that have already been finished.
2. Rinse floor with plain water. For acid stained floors follow stain manufacturer's recommendations for stain drying times and rinsing procedures. Allow floor to dry 1 hour or until it appears visually dry.

### Application of TCS-1 bonding primer

1. Use Multi-Clean's TCS-1.
2. To achieve a strong bond to a regular concrete surface or an acid stained surface apply 1-2 coats of TCS-1.
3. TCS-1 can be applied with a rayon mop or lambswool applicator. Apply thin coats. Coverage is 1200-1800 sq ft/gallon. Allow to dry 45-60 minutes per coat.

### Application of Floor Finish

1. Select the best Multi-Clean floor finish for the application:  
Multi-Clean's Premier is a durable hard finish and the best choice for floors that will not be buffed or burnished.  
Multi-Clean's Decade 100 is a tough finish that can be regularly buffed or high-speed burnished with electric, battery, or propane equipment.
2. Apply 2-3 coats of the finish with a rayon mop or Multi-Clean's Micro Mop Speed Applicator. Allow 30-45 minutes dry time per coat. DO NOT apply more than 4 coats (primer and finish) in a single day.

### What is Acid Stained Concrete?

One of the hottest trends in concrete flooring is using an acid based reactive stain that creates a unique design effect. The stain contains metallic salts that react with certain components in concrete and impart various shades of color (usually earth tones). After acid staining, the floors are sealed.

# Waterborne Performance Coatings and Seals for Concrete Floors

## CONSTANT SHIELD LD-1000

LD-1000 is the simplest product to use and requires the least amount of preparation prior to application. The product is excellent for heavy foot traffic and light to moderate industrial traffic. When LD-1000 is used in areas subject to heavy wheel traffic, high traffic lanes can be recoated quickly and easily to maintain desired appearance levels. LD-1000 is available in high gloss clear.

### Features

- Superior adhesion to concrete
- No acid etching
- Excellent standing water resistance
- Fast drying
- Good adhesion to acid stained concrete

### Recommended Procedures

#### Minimum floor temperature: 50°F

1. Cleaning/Degreasing: FORMULA 340
2. Clear water rinse.
3. Apply using wood block applicator with lambswool pad. Coverage: 900-1200 sq. ft./gallon (first coat may be slightly less).
4. Apply 3 coats minimum, 60 minute dry time between coats. Apply no more than 4 coats in a single day.
5. Recoat high wear areas as needed by following Steps 1 and 2. Apply 1-2 coats.
6. The floor may be re-opened to light foot traffic after 4 hours, normal foot traffic and light wheel traffic after 16 hours, and normal wheel traffic after 48 hours.

**CAUTION:** Do not use LD-1000 in garages.

## CONSTANT SHIELD EZ-2000

**EZ-2000 Clear** is a two component acrylic-urethane that is catalyzed for greater durability. The EZ-2000 system makes concrete finishing easier than ever before.

### Features

- Excellent durability
- Fast drying
- Black tire mark resistant
- Improved chemical and stain resistance

### Recommended Procedures

#### Minimum floor temperature: 60°F

1. Scrub Degreasing: Formula 340.
2. Clear water rinse (twice).
3. Apply a primer coat of LD-1000. Important: A primer coat of LD-1000 is required before applying EZ-2000.
4. Mix Part A and Part B, add Part B to Part A while gently stirring. The mixed product is usable for up to 24 hours. Do not use beyond 24 hours.
5. Apply using a wood block applicator with a lambswool pad. Alternatively for faster application, use a tank applicator. Coverage: 900-1000 sq. ft./gal.

6. Apply 2 or more coats of EZ-2000 over the LD-1000 base primer. Allow to dry 2 hours between coats. Apply no more than 4 coats in a single day.
7. Recoat high wear areas as needed. Simply degrease, rinse, and apply.
8. The floor may be re-opened to light foot traffic after 4 hours, normal foot and light wheel traffic after 24 hours, and normal traffic after 48 hours. **Caution:** Do not use EZ-2000 in garages.

## CONSTANT SHIELD HD-3000

HD-3000 is a two-part epoxy product that provides maximum durability and chemical resistance. It is ideal for industrial areas subject to heavy wheel traffic and/or chemical exposure. HD-3000 is available in clear and pigmented versions.

### Features

- Highest performance
- High gloss
- Higher build per coat
- Part A and B pre-measured
- Improved chemical resistance



### Recommended Procedures

#### Minimum floor temperature: 60°F

1. Cleaning/Degreasing: FORMULA 340
2. Acid Etch: CONCRETE CLEANER AND ETCHER
3. Dilute one part etcher to 2 parts water. See page 3 under 'Etching' for more details.
4. Clear water rinse (twice)
5. Mixing Procedure: a) Add contents of Part B to Part A. b) Mix with a high speed drill and mixer blade attachment. Do not hand mix. c) Mix 2-5 minutes. A noticeable thickening will occur. d) Allow product to stand about 15 minutes, then mix again briefly. e) Product has a maximum pot life of 3 hours at 70°F. **Do not use product beyond usable life of 3 hours.** Temperatures above 70°F will shorten pot life. Review Pot Life/Temp Tables on page 3. It is best to store product in air conditioned environment before using.
5. Apply using a heavy-duty roller with 3/8-1/2 inch nap cover. Coverage 350-600 sq. ft./gal. (First coat may be slightly less).
6. Apply 2-3 coats. Allow 12-16 hours dry time between coats. **Note:** Do not apply HD-3000 Clear over HD-3000 Pigmented.
7. If recoating is necessary, follow screening procedure as outlined in over-coating existing seals.
8. The floor may be opened to normal foot traffic and light wheel traffic after 24 hours and normal wheel traffic after 48 hours.

## DECORATIVE HD-3000

Decorative HD-3000 uses the HD-3000 in conjunction with decorative multi-colored chips which are broadcast into the coating immediately after application (while still wet).

### Features

- Decorative Appearance
- Epoxy Performance
- Easy to Apply



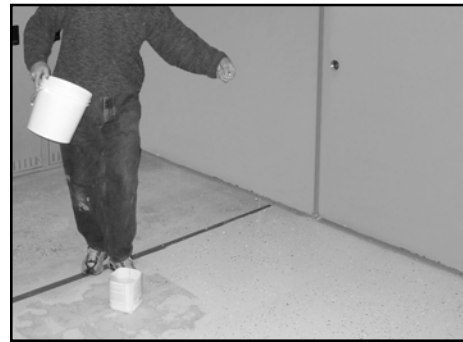
### Recommended Procedures

**Minimum floor temperature: 60°F**

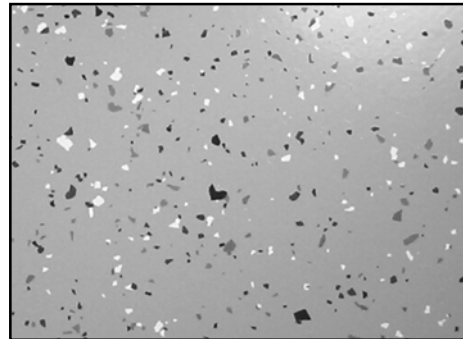
1. Follow steps 1-5 on page 2 for applying HD-3000. *Note: Detailed procedures are included with each purchased kit of Decorative HD-3000.* The first coat applied should be standard HD-3000. The Decorative HD-3000 is used on the second coat.
2. After the standing time indicated on the charts, trim edges with a good quality paint brush (if desired). For best results, a base coat of HD-3000 (Gray or Tan) should be applied on bare concrete without spreading the decorative chips. The HD-3000 must dry 12-16 hours before applying the second coat.
3. Apply in 5'x5' (1.5 X 1.5 meters) sections so the decorative chips can easily be scattered on the freshly coated surface. Best results are obtained when HD-3000 is rolled one way, then cross rolled to insure uniformity.
4. Toss the decorative chips onto the wet film taking care to avoid leading edge. Maintain a wet edge to prevent lap marks and gloss differences. Sweep away loose decorative chips that lay outside the coated area. Immediately continue to the next section, slightly overlapping the previously coated area. Continue until entire floor is completed. **This product must be used within the pot life indicated. If product is used beyond the recommended pot life, the coating may appear to have uneven gloss and color. Do not leave container in direct sunlight.**  
*Tip: To achieve a uniform chip coverage, toss the chips upward over the freshly coated area.*
5. **OPTIONAL: EZ-2000 Clear:** (DO NOT USE IN GARAGES) A clear top coat of EZ-2000 Clear may be applied over the Decorative HD-3000 surface. This should be done after the coating has dried 12-16 hours, but no more than 48 hours later. Apply EZ-2000 with a rayon finish mop or lambswool applicator. Dry time before foot traffic is about 4 hours. Allow 24 hours for normal foot traffic.



*Tip for large areas:  
an automatic scrubber can be used to clean and prepare the floor.*



**Application Tip:** Since you only have between 1-3 hours (depending on temperature) to use the mixed coating, apply the product to an area and have the other person cross roll and spread chips.



## Pot-Life Charts

### If temperature is 60-70°F (16°-21°C)

*Allow HD-3000 to stand after mixing*

Start brushing (trimming edges): ..... 15 min. after mixing  
Start rolling: ..... 15 min. after mixing  
Use all mixed product within (pot life): .... 2½-3 hrs after mixing  
Store product in a cool place until needed.

### If temperature is 71-80°F(22°-26°C)

*Allow HD-3000 to stand after mixing*

Start brushing (trimming edges): ..... 5 min. after mixing  
Start rolling: ..... 15 min. after mixing  
Use all mixed product within (pot life): .... 1½-2 hrs after mixing  
Store product in a cool place until needed.

### If temperature is 81-85°F(27°-29°C)

*Allow HD-3000 to stand after mixing*

Start brushing (trimming edges): ..... immediately  
Start rolling: ..... 5 min. after mixing  
Use all mixed product within (pot life): .... 1 hour after mixing  
Store product in a cool place until needed.



### Non-Skid Finish with HD-3000

HD-3000 is an ideal product to produce non-skid finishes using quartz silica GRIT ADDITIVE. A non-skid finish should be considered in areas that may be frequently slippery due to water or other spillage on the surface.

**A cautionary note:** Quartz silica GRIT ADDITIVE does not possess the hardness required to withstand continuous heavy forklift traffic. Therefore, these types of grit additives should not be used in areas of heavy forklift or other vehicle traffic.



*To make an anti-skid floor with HD-3000:*

The grit can be hand broadcast into the first coat while it is still wet. Broadcast rate is 1 lb. Per 500 sq. ft. After allowing the first coat to dry, add 1-2 top coats of HD-3000 with no GRIT ADDITIVE. Use steel spiked shoes to walk through the wet coating. For best results, throw grit up into the air and allow to settle in the wet coating.

### CONCRETE FLOOR PREPARATION

#### Cleaning and Degreasing

Concrete floors must be free of dust residues, imbedded soil, grease and oils before applying a seal. In order to effectively clean and degrease concrete floors, an automatic scrubber (or low speed floor machine) equipped with appropriate brushes and a strong degreaser are required. FORMULA 340 at 16 oz./gallon is an effective and economical degreaser particularly suited for automatic scrubbers.

When using an automatic scrubber on heavily soiled floors, a double scrub procedure should be implemented. Repeat the cleaning and degreasing steps until the floor is thoroughly cleaned.

*\*Pre-soak Grease/Oil Stains:* Prepare a solution of 1 part Formula 340 to 8 parts warm to hot water. Apply to stain, allow to soak 15 minutes. Spread oil-dri or other absorbent to draw out stain. Sweep up.

**Note: If the floor is not thoroughly cleaned, etched, and completely rinsed, the coating may not adhere properly to the surface.**

### Etching Concrete Floors

Concrete by nature is an alkaline material that is capable of undergoing a neutralizing reaction with acidic products. The etching process is a means of removing surface impurities and roughing the concrete surface in order to achieve a strong mechanical bond between the seal and concrete. This process is important for achieving a strong bond.

To etch a concrete floor, mix 1 part CONCRETE CLEANER AND ETCHER CONCENTRATE with 2 parts water. Apply the etcher to the floor as evenly as possible using a large plastic garden sprinkling can. An immediate white foaming/fizzing reaction should be apparent and will continue for up to 5 minutes. Coverage rate should be approximately 150 sq. ft./diluted gallon.

After 5-10 minutes, scrub the floor and pick up the neutralized solution with an automatic scrubber (may need small amount of Defoamer in recovery tank). Alternatively, scrub with a floor machine and pick up solution with a wet/dry vacuum. **Note:** Although etching products such as a concrete cleaner and etcher are acidic, it will not function when concrete is already sealed nor act as a stripper on existing seals.

After etching, the floor should have a uniform appearance and texture (similar to medium grit sandpaper). Blotchy, smooth or discolored areas should be re-etched to insure uniformity.



A plastic garden sprinkling can works well for application of the Etcher.

#### Water Rinse

Rinsing of the concrete surface is the last step required prior to application of a seal. A thorough rinse with clear water in the solution tank of an automatic scrubber insures that residues from degreasers and/or etching compounds are completely removed. It is recommended this process be repeated once. After the rinsing process is complete, application of the Constant Shield product can commence after a 30-60 minutes dry time. **Note:** The rinsing process should be done with clear water only. Do not use neutralizing agents and/or neutral cleaner in rinse water.

#### Repairing Damaged Concrete

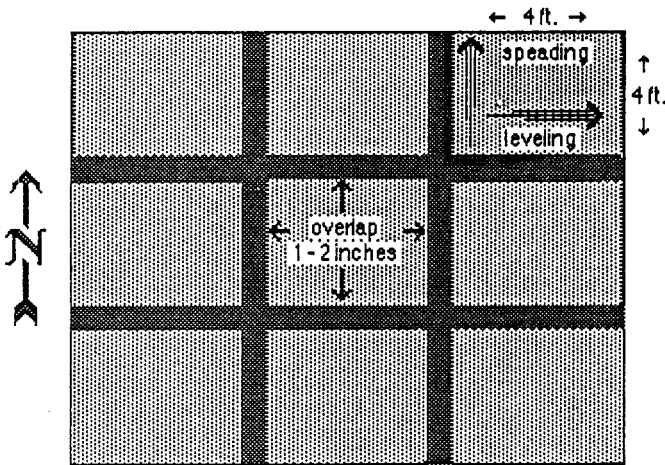
Before applying any Constant Shield product, it is recommended that large cracks and or potholes be repaired with commercial concrete patching compounds and allowed to set according to manufacturer instructions before applying Constant Shield products.

## CONSTANT SHIELD APPLICATION

### Standard Method

To produce an excellent, uniform, well leveled appearance, the following is a recommended application technique for the Constant Shield products.

1. Pour the prepared product into a suitable tub or paint tray.
2. Dip the applicator into the tray; for LD-1000 and EZ-2000 Clear use a wood block applicator with lambswool type pad; HD-3000 use an 18" wide roller with 3/8-1/2" nap cover.
3. Begin applying the product along the wall and in the corner furthest from the planned exit. Work an approximate 4 ft. x 4 ft. square area.
4. First, apply the product by spreading back and forth (north-south direction in diagram) over the 4 ft. x 4 ft. area. **Note:** HD-3000 *Pigmented* products may not hide the concrete with the first coat, therefore the underlying concrete may remain visible. HD-3000 requires 2 coats minimum.
5. Without re-wetting the applicator, level the product by going back and forth (east-west direction in diagram) over the applied seal.
6. Move to the next adjacent 4 ft. x 4 ft. area and repeat steps 2-5. Always overlap the previous area by 1-2 inches to prevent lap marks or seams in the finish.



### Optional Methods

- LD-1000:      Airless Sprayer  
                   T-Bar Applicator  
                   Tank Applicator
- EZ-2000 Clear: Airless Sprayer  
                   Synthetic Mop  
                   T-Bar Applicator  
                   Tank Applicator

**Note:** Concrete surfaces are variable in nature ranging from very smooth troweled to highly textured with a wide range of porosities.

When using Constant Shield products over extremely porous and/or textured concrete, additional coats may be necessary to achieve the desired level of gloss and/or opacity.

### DETERMINING PRODUCT REQUIREMENTS

In order to determine how much Constant Shield product will be needed, use the formula below to assist in proper planning. The total amount of product required should be considered a minimum, some extra product should be available to compensate for shortages.

#### Coverage

LD-1000	1000 sq. ft./gal. (3 coats minimum)
EZ-2000 Clear	900 - 1000 sq. ft./gal. (3 coats minimum)
HD-3000 Clear	450 sq. ft./gal. (2 coats minimum)
Pigmented	400 sq. ft./gal. (2 coats minimum)

Total sq. ft.	Coverage	No. of Coats	Total Gals. Needed
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### MAINTENANCE OF CONCRETE FLOORS

Now that the concrete floor has been sealed, it requires much less time and effort to maintain an acceptable standard of appearance and cleanliness. Soils are more efficiently removed from the floor with low dilution levels of cleaner/degreaser and an automatic scrubber because the soils do not become embedded in the concrete. An automatic scrubber can be used with less aggressive brushes/pads and at high speeds while still maintaining efficient soil removal.

It is **important** to install a regular maintenance program to prolong the life and maintain the attractiveness of the concrete floor. Routine removal of soils (especially gritty materials) will prolong the shine and extend the life of the floor. Automatic scrubbers are highly recommended for effective and productive cleaning of floors.

For routine cleaning, use FORMULA 340 at 4 oz./gallon in the solution tank of an automatic scrubber. The automatic scrubber should be equipped with red scrub pads or scrub type brushes.

## PREVIOUSLY SEALED FLOORS

### Curing Membranes

These types of seals are applied on newly poured concrete to control the loss of water so that the concrete can cure properly. If a concrete floor is new, chances are very good a curing membrane has been applied and has not been worn off.

If there is uncertainty about the presence of a curing membrane or any other type of seal, a simple test will help make the correct determination. Apply several drops of CONCRETE CLEANER AND ETCHER CONCENTRATE onto a clean concrete surface in both high and low traffic areas. An immediate, uniform white foaming reaction indicates a seal is not present. If no reaction occurs, a seal is probably present.

Removal of curing membranes is recommended prior to application of any Constant Shield product.

MASTERY dL can be used as a safer, non-hazardous stripper for curing membrane removal. MASTERY dL is based on d-Limonene, the main component of citrus peel oil. **Caution:** MASTERY dL can damage some plastics if it is allowed to remain in contact with them.

MASTERY dL can be used to strip curing membranes as follows:

1. Generously apply MASTERY dL to the floor with a mop or lambswool applicator. Coverage: 150 sq ft/gal.
2. Allow to stand 15-20 minutes.
3. Scrub with a floor machine using an aggressive scrub grit brush or black stripping pad.
4. Flood rinse stripped area with water. Note: If a wet/dry vacuum or automatic scrubber is used, swelling of elastomeric materials and/or softening of plastic components can occur if lengthy contact occurs.
5. Follow recommended procedures for concrete floor preparation.

**Note:** Many types of curing membranes can also be stripped using a 1:1 solution of Ultra Stripper.



*Automatic scrubbers help effectively clean floors and prolong the life of your coated floors.*

### Overcoating Existing Seals

Very frequently, a previously sealed concrete floor will be encountered where the seal is well bonded to the concrete but the floor has worn.

Although stripping of the seal except for Constant Shield products, is the preferred method, it may be possible to overcoat the old seal provided the seal is well bonded to the concrete. **Caution:** Any signs of chipping or flaking indicates an inadequate bond that should not be overcoated.

A simple method of checking the bond of a seal is to use a razor blade to scribe a cross-hatch (tic-tac-toe) pattern into the seal. The scribes should go through the seal to the concrete surface. Apply a piece of duct tape to the cross-hatch pattern and rapidly pull off. If any of the seal is removed, adhesion may not be adequate.

Due to the wide variety and chemical make-up of concrete seals on the market, it is impossible to provide absolute assurance that the Constant Shield products will work over existing seals even if preparation procedures are followed.

If coating over an unknown seal, it is strongly recommended that a test patch of the Constant Shield product be applied following the procedure below. **Note:** the test patch should be applied in an area subject to normal traffic for several weeks to insure a good bond is obtained.

1. Clean/degrease the floor (see Concrete Floor Preparation). Allow to dry.
2. Thoroughly roughen the old seal by using a floor machine and a 60 or 80 grit screen.
3. Sweep or vacuum up dust residues.
4. If bare concrete is exposed in heavy wear areas, these areas may need to be etched depending on the Constant Shield product selected.
5. Apply product.

### Mechanical Removal of Coatings

Removal of seals by non-chemical methods involves a grinding, blasting or scarifying process with specialized equipment. This process is usually done by professional contractors.

# The PROVEN Multi-Clean Method for Concrete Floor Care

## **TCS-1**

Acrylic seal for terrazzo and concrete floors. Recommended when conventional floor finishes are used. Insures good adhesion and prevents powdering. Works well on acid stained floors.

## **CONSTANT SHIELD® LD-1000**

Water-based polymer coating designed to seal and protect concrete floors. This coating provides an easy to maintain, tough, glossy finish that protects and beautifies concrete floors. No etching required.

## **CONSTANT SHIELD® EZ-2000**

Durable waterborne concrete coating system that dries fast and is easy to apply. Available in a two-part clear topcoat for added durability.

## **CONSTANT SHIELD® HD-3000**

Waterborne two-part epoxy concrete sealer designed for the toughest applications. Suitable for use in heavy traffic areas or areas prone to chemical spillage. Available in clear, light tan and light gray.

## **DECORATIVE HD-3000**

Waterborne two-part epoxy concrete sealer designed for the toughest applications. Suitable for use in heavy traffic areas or areas prone to chemical spillage. Available in light tan and light gray.

## **CONCRETE CLEANER AND ETCHER CONCENTRATE**

Concrete Cleaner and Etcher Concentrate is a dilutable product used for preparing unsealed concrete for application of protective coatings. It creates a roughened surface that allows coatings to achieve a strong bond with the concrete surface.

## **NON-SKID SILICA SAND ADDITIVE**

Grit additive for use with HD-3000 to make non-slip floor surfaces.

## **FORMULA 340**

Powerful, low-foam synthetic cleaner/degreaser, contains no solvents. Excellent for use in automatic scrubbers for concrete floor maintenance.

## **MASTERY dL®**

High strength natural d-Limonene solvent-based cleaner/degreaser designed to remove stubborn spots and stains such as tar, asphalt, solvent-borne tile and carpet adhesives, grease, oil, chewing gum, curing membranes and other similar difficult-to-remove materials.

## **Ultra Stripper**

Use for stripping conventional floor finishes. Also can be used to strip some types of curing membranes.

### **Multi-Clean Technical Support**

Call Multi-Clean Technical Support with questions or comments between  
8:00 am - 5:00 pm CST at 1-800-433-6816 and ask for Technical Support.

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