



# Using Safety Strip 61 Special



## MIL-PRF-83936C Two Phase Paint Stripper Application Supplement to Brand Sheet

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### **DESCRIPTION**

Two phase stripper rapidly removes mil-spec and industrial paints, seals, adhesives and other coatings. Safety Strip 61 Special is an effective alternative to methylene chloride and acid-based strippers. Bond-breaking technology uses an amine activator to break the paint cross-link bonds allowing the solvent to more effectively lift the paint for faster and more complete paint removal.

### **SPECIFICATIONS**

Meets all the requirements of and is listed on MIL-PRF-83936C QPL

### **FEATURES**

- Does not contain acids, NPE, chlorinated solvents, chromates, free caustic or phenols.
- Simple, effective tank monitoring and maintenance significantly extends tank life.
- Documented safe on a wide range of metals and conversion coatings.
- Supplied as a ready-to-use product including both the base stripper phase, as well as the oil seal phase to suppress evaporation and odor, and extend tank life.
- Free rinsing

### **MATERIAL COMPATIBILITY**

- Material compatibility is excellent on a wide variety of metals and conversion coatings. See the testing results summary or ask your BHC representative for guidance on compatible materials.
- Excellent performance has been achieved even on delicate Cadmium-plated materials by limiting
  - operating temperatures to a maximum of 140°F (60°C) and
  - exposure time 1 – 1.5 hours maximum.
- Safety Strip 61 Special has limited compatibility with some plastics. See the Brand Sheet for suitability.

For guidance about Storage, Safety, Waste Disposal, Handling, First Aid and other considerations, refer to label and SAFETY DATA SHEET prior to using this product.

### **USE INSTRUCTIONS**

#### Preparation

Pre-clean Parts — To minimize contamination of the paint stripper bath and obtain the best paint stripping performance and bath life, soiled parts should be cleaned/degreased to remove gross contaminants prior to stripping. Ensure thorough rinsing and drying of parts prior to stripping.

#### Stripping

1. Add Safety Strip 61 Special to the process tank. USE ENTIRE CONTENTS OF CONTAINER. Using partial amounts from the container may alter the oil to stripper ratio. Do not dilute. (See Tank Volume Calculator – Safety Strip 61 Special for calculation of fill volume and oil seal layer thickness.)
2. Heat solution to a suitable temperature for your parts and paint. Stripping may be done at ambient temperature up to 175°F (79°C). Typically is used between 160-175°F (71-79°C).



3. Immerse parts in tank and soak until coating is soft enough to be scraped or rinsed off. Although stripping may be complete in as little as 5 minutes, difficult coatings may take much longer to remove, even as long as several hours.
4. Remove Parts. Allow to drain.
5. Rinse Parts - Once removed from the stripping tank, parts should be moved promptly to a separate wash area for spray rinsing. Hot water and pressure will aid removal of the softened coating. Brushes may also be helpful in physically removing any remaining coating.
  - Rinsing must be done fairly quickly and thoroughly -- to minimize any risk of damage to aluminum parts.
  - Ensure thorough rinsing of faying surfaces, blind spots, and structural details that trap stripper solution.
  - DO NOT ALLOW THE SPRAY RINSE TO ENTER THE STRIPPER TANK! Contaminating solution with water can lead to loss of performance and potential for corrosion problems.
6. Dry parts -- Cleaned, stripped, dried parts may proceed immediately to the next step in the process. Parts should be protected appropriately from atmospheric corrosion between steps or in storage.

#### **Notes on Use**

1. The oil seal is effective in minimizing evaporation of the stripping tank. Nonetheless, it is recommended that the tank have a cover and that work area ventilation is adequate to remove vapors when the tank is open. Workers should be wearing appropriate protective equipment as well. See SDS for protective equipment recommendations.
2. The stripping tank itself should be protected from contamination with water. Excessive water contamination can lead to corrosion (primarily on aluminum) and will eventually degrade paint stripping performance.
3. Cylindrical parts should be immersed on an incline to prevent air bubbles from being entrained within the cylinder. It is also helpful to rotate cylindrical parts periodically.
4. When charging a new tank with #350026, be sure to use the whole container to ensure the designed ratio of stripper to oil seal. If the stripper layer or the oil seal layer needs to be increased use the appropriate additive. See "Tank Volume Calculator – Safety Strip 61 Special".
5. As immersion time and stripping tank temperature both will influence stripping performance, users may optimize stripping temperature and immersion duration for their process requirements.

#### **CALCULATING FILL VOLUME AND OIL SEAL REQUIREMENTS**

1. BHC supplies three separate products to allow flexibility in tank fill:
  - a. Safety Strip 61 Special (product no. 350026) comes as a ready-to-use product including both the base stripper, as well as the oil seal layer to suppress evaporation and odor, and extend tank life. This contains 85%(v/v) stripper base and 15%(v/v) oil seal. One drum (55 gallons/208L) delivers 8.25 gallons (31.2L) of oil seal. Use the whole container to ensure the designed ratio of stripper to oil seal.
  - b. Safety Strip 61 Special Base (product no. 350025) – 100% stripper
  - c. Safety Strip Oil Seal (product no. 331023) – 100% oil seal, to adjust the thickness of the oil seal
2. BHC recommends for most applications an oil seal thickness of 2-4 inches (5-10 cm).  
Example:
  - A tank with dimensions 2' X 6' X 5'(depth) [ 61x183x152 cm], has total available volume 60 cubic feet or 448 gallons [1697L].
  - An initial fill of 8 drums (440 gallons/1665.5L) total volume would roughly fill the tank.
    - Immersed parts will displace a volume of safety strip equal to its own volume, so adequate head space must be allowed to accommodate the largest anticipated part.
    - Liquid level must completely cover the part.
  - This tank geometry has a fill height per volume of 7.46 gallons/ inch (11.16L/cm)
    - Each drum of Safety Strip 61 Special contains approximately 15% oil Seal or 8.25 gallons (31.2L)



- Therefore 3 drums of Safety Strip 61 Special (product no. 350026) will give 24.75 gallons or 93.6L of oil seal which will give an oil seal depth of 3.3 inches (8.4 cm) in a 2' X 6' (61 X183 cm) tank
- Safety Strip 61 Special Base (product no. 350025) will be used to make up the remaining volume.
- Separate oil seal or base can be used to adjust the proportions.

### **EQUIPMENT CONSIDERATIONS**

1. Safety Strip 61 Special is designed to be used in a heated immersion tank. We highly recommend that the tank be set up with recirculating agitation using undersurface Eductors to direct impingement at the parts to be immersed in the stripping tank. It may be possible to use an up and down stroke system as long as the motion does not cause temporary breaks in the oil seal layer. (Do Not Use Air-sparging, as this can shorten tank life.)
2. A lid or cover on the tank is strongly recommended; see Notes on use #1.
3. A part rinse station should be set up near enough and with part handling to permit quick transfer from the stripping tank so that rinsing may be done immediately after draining.
4. Rinse tank should be separated from the stripping tank to avoid contamination with rinse water.
5. In order to monitor and maintain Oil Seal at a level between 2-4 inches (5-10 cm), a tank sight gauge is a convenient to monitor seal thickness.

### **BATH MAINTENANCE**

1. An additional product, Safety Strip 61 Special Additive (product no. 350027) may be used in the maintenance process.
2. Our experience has shown a straightforward procedure based on 4 process parameters is sufficient for tank maintenance and can permit extremely long tank life.
  - pH:** The pH must be maintained at 12.0 or higher as measured on a room temperature sample with a pH meter (test strips are not adequate).
  - FTIR:** Compare the spectrum of the tank sample with a reference standard of fresh Safety Strip 61 Special using Thermo Scientific's Omnic™ Software. Drop-off in tank performance tends to occur when the match value drops below a value of 92.0. Contact your BHC representative for more detail.
  - Performance:** This parameter must be judged by customer experience and paint stripping process requirements to determine when the stripping rate becomes too slow to be acceptable.
  - Corrosion:** Must establish acceptable limits internally. See BHC's "Maintenance Guidelines for Aqueous Detergent Tanks" for an example of corrosion monitoring limits.
3. Water content — avoid accumulation of excess water to prevent corrosion and/or decrease in paint stripping rate.
4. Monitor tank Liquid Level and Oil Seal thickness

### **CORRECTIVE ACTIONS**

1. Replace drag-out and evaporative loss with Base; this may also increase the pH and improve performance.
2. Use Alkalinity Booster to increase pH to a level between 12 and 13 only when the pH has dropped to/below 12.0. This action should improve performance and increase tank life.
3. Maintain Oil Seal at a level between 2-4 inches (5-10 cm). A tank sight gauge is a convenient to monitor seal thickness.
4. When Corrosion Rate becomes too high suspect the water content is too high and either reduce the water content using heated evaporation or consider dumping the tank. When Performance becomes too slow consider dumping the tank.

