



ENPREP 576E

Alkaline Soak and Electrolytic Cleaner

Product Code: 202091

DESCRIPTION

ENPREP 576E is a non-cyanide, phosphate-free, versatile cleaner especially effective in removing rust, oils, silicated drawing compounds, and lubricants. A blend of dispersants and deflocculants in addition to alkalis and detergents provides **ENPREP 576E** with its unusual oil removing properties and excellent rinsibility. **ENPREP 576E** contains no cyanide or phosphate compounds; waste treatment is simplified and costly cyanide consumption is eliminated.

ENPREP 576E is designed primarily for use on ferrous metals, nickel and cobalt base alloys. It can also be used effectively to clean copper and copper alloys, titanium alloys and magnesium.

ENPREP 576E CANNOT BE USED FOR ALUMINUM AND ALUMINUM ALLOYS.

As a soak cleaner, **ENPREP 576E** removes grease, oil, oxides, rust and soils from steel parts. It cleans rapidly, penetrating into blind holes and between adjacent flat surfaces. It is an excellent soak cleaner for oily, smutty steel prior to phosphating, blackening, and painting and is ideal for soak cleaning copper alloys. It removes tarnish from copper and brass in addition to soil. **ENPREP 576E** also removes some types of heat scale from copper and loosens other types of scale sufficiently so that subsequent acid pickling requirements are reduced.

ENPREP 576E may be used as an anodic cleaner for steel and copper. In one simple electrolytic operation it completely removes rust, scale, carbon smut, oxides and soils from steel ensuring excellent adhesion of subsequent plated coatings.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT



OPERATING PARAMETERS

Parameter	Soak Cleaning	Anodic Cleaning
Concentration	8 to 12 oz/gal (60 to 90 g/L)	12 to 20 oz/gal (90 to 150 g/L)
Temperature	180 to 200 °F (82 to 93 °C)	180 to 200 °F (82 to 93 °C)
Time	2 to 5 min	1 to 4 min
Current Density	-	50 to 100 ASF
Voltage	-	4 to 6 volts

Work to be cleaned or derusted is merely immersed in the hot solution until the metal surface is clean. The work should then be removed and rinsed in cold water. Usually 1 to 5 minutes immersion is sufficient for cleaning; up to 15 minutes may be required for removal of heavy rust and grease. Immersion times will be shortened if the work is removed from the solution when rust has been sufficiently loosened and disintegrated so that it can be flushed off in cold water rinse. Mild agitation of the work generally speeds up the cleaning action.

If the work is to be painted after treatment in **ENPREP 576E**, the metal surface should first be neutralized after rinsing by immersion in dilute chromic acid. A brief dip in chromic acid will also help to remove any residual smut following cleaning of oily, smutty steel in **ENPREP 576E**.

Best results are obtained with **ENPREP 576E** after the solution has been held at operating temperature for a few hours. The separation of an oily-looking layer on the surface of the solution during operation is normal and has no adverse effects. Any of this layer which drags out on the work rinses off readily in cold water.

MAKE UP PROCEDURE

1. Add warm 110 to 120 °F (43 to 49 °C) water to the tank. **NOTE:** Do not add **ENPREP 576E** powder to water hotter than 120 °F (49 °C). If **ENPREP 576E** powder is dumped directly into hot water, there is danger of eruption due to the heat of solution of the powder.
2. Slowly and with constant stirring add the required amount of **ENPREP 576E**.
3. When all of the **ENPREP 576E** powder is dissolved, add water to final volume and raise the water temperature to operating temperature.

EQUIPMENT

ENPREP 576E may be contained in plain steel tanks and heated by means of a steel steam coil or Platecoil. Exhaust ventilation is recommended to remove steam generated by operating at elevated temperatures, and alkaline spray generated by anodic cleaning.

ANALYTICAL PROCEDURES

The following analytical procedures are recommended for use by personnel who have been trained to use laboratory practices which are considered safe and prudent by chemical industry standards. Such practices include suitable personal protective equipment, the use of proper equipment, the use of proper methods of handling all chemicals and proper laboratory procedures.

CAUTION: The following procedures involve the use of potentially hazardous chemicals; manufacturer's material safety data sheets should be consulted and the appropriate safety cautions followed.

ANALYSIS FOR ENPREP 576E**Equipment Needed**

- 10 mL pipet
- 50 mL buret
- 250 mL Erlenmeyer Flask

Reagents Needed

1.0N Sulfuric acid (H₂SO₄) solution - cautiously, and with stirring, add 28 mL of H₂SO₄, concentrated, AR grade, into approximately 500 mL of deionized water in a 1 liter volumetric flask. Cool and dilute to one liter. Standardize against a sodium hydroxide solution of known concentration. Cool.

NOTE: Always add acid to water; never add water to acid.

2% Phenolphthalein Solution - dissolve 2 grams phenolphthalein in 100 mL denatured alcohol.

Procedure

1. Pipet a room temperature 10 mL sample of the operating solution into the 250 mL Erlenmeyer flask.
2. Dilute to 100 mL with water. Swirl to mix.
3. Add 8 to 10 drops of the phenolphthalein indicator solution to the diluted sample.



4. Titrate with 1.0 N H₂SO₄ until the solution changes from red to a yellow end point. Record mL used.

Calculation

$$(\text{mL } 1.0\text{N H}_2\text{SO}_4 \text{ titrated}) \times (0.981) = \text{oz/gal} \quad (\text{NOTE: } \text{oz/gal} \times 7.5 = \text{g/L})$$

Replenishment

Replenish to original make-up concentration.

SAFETY & WARNING

MacDermid Enthone recommends that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use.

Safety Data Sheets are available from MacDermid Enthone.

WASTE TREATMENT

Prior to using any recommendations or suggestions by MacDermid Enthone for waste treatment, the user is required to know the appropriate local/state/federal regulations for on-site or off-site treatment which may require permits. If there is any conflict regarding our recommendations, local/state/federal regulations take precedent.

ORDER INFORMATION

Product	Code
ENPREP 576E	202091

CONTACT INFORMATION

To confirm this is the most recent issue, please contact MacDermid Enthone
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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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