

# MLC 300LF

MLC-300LF is an aqueous alkaline cleaner used for pre-cleaning in preparation for penetrant inspection. MLC-300LF is approved for use on aerospace components for general degreasing and cleaning and is similarly used in non-aerospace applications.

In all aqueous cleaner applications, the cleaner and residues must be thoroughly rinsed from the surface with clean water and the surface dried prior to penetrant application. MLC-300LF is also used for post inspection cleaning for the removal of inspection penetrant and developer residues.



## NDT Classification

- Aqueous Alkaline Cleaner

## Available Sizes

- 1 Gallon (3.7L)
- 5 Gallon (18.9L)
- 55 Gallon (208L)

## Typical Properties

- Form: Clear to slightly hazy liquid
- pH: Approximately 12
- Flash Point: None

## Specifications

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| <ul style="list-style-type: none"><li>• Airbus</li><li>• AMS</li><li>• ASTM</li><li>• Boeing</li><li>• CFM</li><li>• General Electric</li><li>• Goodrich</li><li>• Honeywell</li></ul> | <ul style="list-style-type: none"><li>• Honeywell</li><li>• IAE</li><li>• Lockheed Martin</li><li>• Messier</li><li>• Pratt &amp; Whitney</li><li>• Rolls-Royce</li><li>• Safran</li><li>• Snecma</li></ul> |
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For a complete listing of approvals, visit [www.Met-L-Chek.com](http://www.Met-L-Chek.com).

## Benefits

- Effective in removing oily soils, light grease, fingerprints, cutting fluids and coolants, salt residues, loose scale, and rust.
- Safe for use on steel, aluminum, magnesium, copper, titanium, nickel alloys; most plastics, composites, and bonded paints.
- Used in soak tanks, agitated dip tanks, spray washers, steam cleaners, and ultrasonic cleaners.
- Low foaming, free rinsing, yielding clean streak free surfaces.

## Notes Prior to Handling

Before using Met-L-Chek® products, all safety and operating instructions should be read and understood. If you have any questions, please contact your Met-L-Chek® representative before proceeding. For complete health and safety information, refer to the product's Safety Data Sheet. Met-L-Chek® Safety Data Sheets can be requested online at [www.Met-L-Chek.com](http://www.Met-L-Chek.com)

**USE PROCEDURE****Tank Recommendation**

- Stainless Steel (300 Series) is recommended for use with MLC-300LF.

**Immersion Tank Cleaning**

1. Mix MLC-300LF in water at 10% - 25% by volume, depending on degree of contamination.
2. Immerse parts in bath at 120 - 160°F (50 - 70°C) for 5 to 30 minutes. Best results are obtained if the solution is agitated.
3. When cleaning is complete, remove parts from bath and allow excess solution to drain back into the tank.
4. Spray rinse parts over tank and immerse in an air-agitated, overflowing water rinse tank.

**Spray Wash Cleaning**

1. Charge tank with a 5% to 20% by volume in-water solution of MLC-300LF (depending on degree of contamination) and heat to 120 - 160°F (50 - 70°C).
2. Spray wash for 5 to 30 minutes as required.
3. If spray washing equipment does not employ a rinse cycle, spray rinse parts with water or immerse in an air-agitated, overflowing water rinse tank.

**Ultrasonic Cleaning**

1. Mix MLC-300LF in water at 15% to 25% and operate at 120 - 140°F (50 - 60°C), for 5 to 15 minutes.

**Note:**

In combined Immersion Soak/Ultrasonic applications the solution strength can be reduced to the range 8% to 20% while elevating the temperature from 85 - 160°F (30 - 70°C) for periods of 10 to 20 minutes.



## **Solution Control – UV Spectrophotometer Method**

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### **UV Spectrophotometer Method**

#### **Reagents & Equipment**

- Deionized water
- UV Spectrophotometer
- 10 mm Quartz Cuvettes
- 2 ml Class A Volumetric Pipette
- 100 ml Class A Volumetric Flask

#### **Analysis Procedure**

1. Pipette 2 ml from a foam-free sample of MLC-300LF working bath to a 100 ml volumetric flask.
2. Dilute the flask to volume with de-ionized water, stopper, and mix well by gentle inversion (keep foam to a minimum).
3. Measure the absorbance of this dilution using a 10 mm quartz cuvette at 272 nm. Use deionized water as a reference blank.
4. Calculation:  
(Volume %) MLC-300LF concentration = (sample absorbance @ 272 nm) X (32.14).

### **pH**

- To ensure optimum performance, maintain bath pH within the range of 10.0 to 12.0 using a reliable pH meter. MLC-300LF pH Adjuster is available in two versions:

#### **Liquid pH Adjuster**

- Add with agitation 0.02% of tank solution to increase pH by 0.1 unit. Note that this addition is only valid for a pH below about 10.8.
- When adjusting Super MLC-300LF solutions with a pH 10.8 or above, more Liquid pH adjuster will be necessary.
- If concentration and pH are within their recommended ranges, and performance is not satisfactory, the tank should be dumped and recharged with a fresh solution of MLC-300LF.

 **Solution Control – Titration & Refractometer Methods**

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**Titration Method****Reagents & Equipment**

- pH Meter
- 250 ml Erlenmeyer Flask
- 50 ml Burette
- 50 ml Volumetric Pipette
- 0.1 N Acid, Standardized
- Deionized or Distilled Water

**Analysis Procedure by Titration**

1. Pipette 50 ml of tank solution into a 250 ml Erlenmeyer flask.
2. Add approximately 50 ml DI water.
3. Titrate with 0.1N acid to pH of 9.0 and record ml acid as A.
4. Continue titration to a pH of 4.0 and record total ml acid as T.
5. Calculation:

$$(T - A) \times (1.16) = \% \text{ (vol.) MLC-300LF}$$

**Refractometer Reading Method****Reagents & Equipment**

- Hand Refractometer (0-30 Scale), any hand-held Brix Refractometer (0-30 Scale)

**Analysis Procedure by Refractometer Reading**

1. Allow a sample of the MLC-300LF bath to cool to room temperature 73 - 80°F (23 - 27°C).
2. Thoroughly mix the sample and immediately apply a few drops to the inclined rectangular window of the refractometer using the plastic rod provided to make the transfer.
3. Immediately close the plastic cover over the window.
4. Hold the instrument up to a strong light and read the refraction value on the scale of 0 to 30 units (water will read -0-).
5. Calculation:

$$(\text{Refractometer Reading}) \times 4.7 = \% \text{ (vol.) MLC-300LF}$$

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Met-L-Chek® manufactures a complete line of Nondestructive Testing materials including penetrants used in fluorescent (Type 1) and visible (Type 2) dye penetrant inspection, wet and dry magnetic particle inspection, and a variety of specialty testing materials.

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