

ENVIRO ♦ GOLD #816/18.54A

NEUTRALIZER & DEFLUXING CLEANER (SUPER) CONCENTRATE

TECHNICAL DATA SHEET

Characteristics

Appearance:	Amber
Odor:	Amine
Liquid:	Low viscosity
Specific Gravity:	1.05 +/- 0.01 at 25°C, (not a specification)
Shipping Weight:	8.4 lbs per gallon

Concentrate changes as dilutions increase:

<u>Concentrate</u>	<u>Level</u>	<u>Appearance</u>	<u>pH</u>	(in dynes at 20C) <u>Surface Tension</u>	<u>°Brix</u>	<u>Refractive Index</u>
100%	Neat	Clear Amber	N/A	29	Off Scale	
20%	4to1	Hazy	11.6	30	14.7	1.3551
10%	9to1	Sl. Hazy	11.5	32	7.6	1.3439
5%	19to1	V. Sl. Hazy	11.3	34	3.7	1.3385
2.5%	39to1	V. Sl. Hazy	11.1	36	1.8	1.3357
1.25%	79to1	Almost Clear	11.0	38	1.0	1.3344

Titration of % of #816 in wash section(s)

Take 5ml sample of #816 wash solution, then add 30 ml D.I. water.

Titrate to Methyl Orange or Methyl Red endpoint with 1.0N Standard Acid.

Note: Results will differ slightly between indicators.

DIRECTIONS

ENVIRO ◊ GOLD #816/18.54A

USE DIRECTIONS

This aqueous based formula is in a highly concentrated form. Depending upon the application requirements, Enviro ◊ Gold is designed to be mixed with de-ionized water at a 9 to 1 dilution ratio (10%) for the removal of Resin/Rosin or water soluble flux residues. This suggested dilution ratio may vary considerably due to "board" conditions, rosin content of flux and residue/contaminant removal requirements. A "Bench Test" is highly recommended to determine proper dilution and material compatibility.

SUGGESTED PARAMETERS

- **In-Line and Batch** cleaning equipment:

For removal of **Leaded No Clean** or **RA/RMA flux residues** we suggest testing begin at 150°F to 160 °F with a dilution ratio of 1 part Enviro ◊ Gold" to 9 parts de-ionized water (10%).

For enhancing cleaning in **Lead Free WS**, traditional **WS/OA** or **PCB HASL** flux removal applications, begin testing at 19 parts de-ionized water to 1 part **#816** (approx. 5%) at 145°F to 150°F. Minimum chemical contact for PCB panel in Post HASL cleaning process should be 20 seconds or greater. Chemical flow rates can be increased to allow for decreased chemical contact time. Increased wash solution temperatures can also speed wash process dwell time.

- For stencil cleaning, begin testing at 14 parts de-ionized water to 1 part #816 (7%) at 145°F.
- For **RA/RMA** "touch ups" brush on **#816** (neat) or with a dilution of 1 part D.I. water to 3 parts **#816**. Allow 30 seconds to set and then brush re-work area. The **#816** is designed to be rinsed with de-ionized water and can also be rinsed with alcohol. The **#816** is for usage as a saponifier, therefore works more effectively at elevated temperatures with D.I. water, along with (automated and mechanical) wash and rinses.

The length of time between wave" and/or re-flow" and reaching the cleaning unit is a key in obtaining the optimum results. Operating at lower concentrations of the **#816** can be achieved if the time between soldering and the cleaning process is minimized.

- Use of High Volume-Low Pressure (HVLP) nozzle configurations can be useful when cleaning assemblies that are densely populated.
- The chemistry should be sprayed, or highly agitated or cavitated, at elevated temperatures, during use for optimum results.
- **Note, Experimentation: altering temperatures, dwell times and concentrations of the chemistry will help in obtaining the desired results.**

CHEMIST'S NOTES

A general Caution in the use of some water soluble fluxes:

Do not use softened water with water soluble fluxes; water in which the Calcium and Magnesium ions are replaced with Sodium ions. Use of de-ionized water is recommended.

The reason:

Some water soluble acid fluxes are based on Oxalic Acid, a widely used Dibasic Organic Acid: HO (O) C-C (O) OH. Oxalic Acid is very water soluble, and also are its fully neutralized salts. Di-Sodium..Di-Potassium..Di-monoethanol Amine.., and so forth. However, the Mono-Sodium Salt is only sparingly soluble in water. If it forms in a cleaning system it may cause problems.

If the wash has a high enough concentration of Sodium and Oxalate ions the half salt may form then lodge under tight geometries and cause corrosion or shorting problems in use. The combinations of pH, Oxalate and Sodium Ion required to form the half salt are complex. In order to avoid the problem, the Sodium ion must be kept out of the water. Use deionized water, especially in cleaning and rinsing of electronic assemblies.

It goes without saying that Sodium Hydroxide as a neutralizing agent offers the greatest downstream risk. Mono-Ethanol Amine (the saponifier in **#816**) **does not** have this risk.

General Cautions:

Store at over 40°F and not above 85°F. If material is stored at length, at near or under 32°F, product may separate. Allow containers to warm to ambient (approx. 68°F) then mechanically mix and/or agitate.

When cleaning pH reactive metals such as copper, brass, bronze and aluminum; always pre-test to determine a cleaning dwell time. The **#816** can discolor and will corrode the above metals if they are over exposed to the chemistry. Also check your cleaning equipment for any material compatibility issues.

By altering concentrations, cleaning dwell times and temperatures; contaminants even such as flux and oils can be removed quickly and efficiently without effecting reactive metallic surfaces.

If extended dwell times are required, the use of our #766/20.69C Metal Brightener may remedy discoloration issues.