

HYDREX®* SP Aqueous Cleaner

For Stencil/Misprint Cleaning

Description

HYDREX SP Cleaner is a unique blend of select detergents and solvents formulated to offer safe, non-flammable cleaning in aqueous spray cleaning equipment. **Used in dilution, HYDREX SP is a neutral pH detergent formulated for removing uncured surface mount device (SMD) adhesives and solder pastes from stencils and misprinted circuit assemblies.**

It is an ideal cleaning agent for electronics manufacturers who want (1) to clean SMD adhesives and solder pastes in one cleaning process, (2) to reduce VOC emissions and/or comply with VOC regulations, (3) to reduce or eliminate flammable or combustible solvents, and (4) to improve operator safety.

Typical Properties

Table 1.

Appearance (Concentrate)	Clear, water-white
Flash Point of Concentrate (Pensky-Martens Closed Cup, PMCC)	222°F (105°C)
Flash Point of 10% solution (PMCC)	None
pH of 10% solution	7.0 ± 2.0
Freeze/Thaw Stability	Stable
Specific Gravity @ 25°C	0.96
Viscosity @ 25°C	Approx. 1 cps (in use)
Vapor Pressure @ 20°C	>1 mm Hg (estimated)
Odor	Essentially none

Environmental Properties and Regulatory Status

Table 2.

Ozone Depletion Potential (ODP)	Zero
Global Warming Potential (GWP)	Essentially Zero
Volatile Organic Compound (VOC) of 10% Solution	Less than 60 grams per liter
Significant New Alternatives Program (SNAP)	Approved
Hazardous Air Pollutants (HAP)	No
National Emission Standards for Hazardous Air Pollutants (NESHAP)	Not regulated
Superfund Amendments and Reauthorization Act (SARA)	Not regulated
Resource Conservation and Recovery Act (RCRA)	Not regulated

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Applications HYDREX SP is designed to remove all types of uncured SMD adhesives and rosin, water-soluble, and no-clean solder pastes from stencils and misprinted SMD assemblies. It also removes new epoxy solder pastes such as Alpha AP 4000.

Partial list of pastes and SMD adhesives cleaned by HYDREX SP

Solder Pastes (Unreflowed)		SMD Adhesives
AIM NC251	Multicore US3519	Asahi (Multicore) SA33-P2
Alpha OMNIX 5000		
Alpha WS 609	OMG WS 300	Asahi (Multicore) SA35
Alpha WS 619	OMG WS 350	Ciba Epibond 7275 (Red and Yellow)
Alpha UP78	Senju 221 RMA	Heraeus PD944
Alpha UP78-OSP	Senju 716 B	Heraeus PD955PR
Alpha AP 4000	KOKI SE5-M951X	Heraeus PD955PY
ESP 6-SN63-576-E		Loctite Chipbonder 3607
Indium SMQ51		Loctite Chipbonder 3609
Indium SMQ92		Loctite Chipbonder 3611
Indium SMQ92J		Loctite Chipbonder 3612
Kester 244L		Loctite Chipbonder 3616
Kester R244		

Process HYDREX SP is fully compatible with aqueous spray and ultrasonic stencil cleaning equipment. The product is most effective when used heated. Optimal wash bath operating temperature is 120°F, but bath temperatures can range from room temperature to 140°F (23°-60°C). Follow washing with a DI water rinse. Rinse water temperatures should be 80°-110°F (27°-43°C). After rinsing stencils or assemblies, surfaces should be allowed to air dry or be blown dry with forced air.

Typical HYDREX SP Aqueous Stencil Cleaning Process Steps

Steps	Process Details
1. Wash stencils or misprinted assemblies in a 10% concentration of HYDREX SP in water.	The wash bath temperature should be 115° -130°F (46°-54°C), depending upon the particular residue to be removed. Typical cleaning times are from 3 to 7 minutes.
2. Rinse the residual HYDREX SP and dissolved residues from surfaces.	HYDREX SP rinses easily with slightly heated or room temperature water. Typical rinse times are 1 minute to 1.5 minutes.
3. Dry surfaces as necessary.	To remove the residual rinse water, use any appropriate method: desiccated forced air, oven, fan, centrifugal force, hand wipe, or other.

Application Summary

Application	Typical Concentration (HYDREX SP in Water)	Typical Bath Temperature	Typical Cleaning Time
Stencil/Misprint Cleaning	10%	120°F (49°C)	5 minutes
Defluxing (water soluble)	5%-10%	140°F (49°C)	2-5 minutes

Bath Monitoring The concentration of HYDREX SP in the wash bath can be measured using refractive index. Please contact Petroferm for a graph of refractive index versus concentration.

Compatibility Stencils – At operating temperatures below 130°F (54°C), HYDREX SP is compatible with stencil materials of construction, including adhesives and emulsions. Always keep operating temperatures below 130°F (54°C) when cleaning stencils. Studies show that stencil materials of construction are much more susceptible to attack at temperatures above 130° F (54°C), regardless of cleaning product.

Circuit Assemblies - HYDREX SP is compatible with PWB materials of construction such as epoxies, flex laminates, and other cross-linked polymers. It does not affect cured solder mask.

Equipment – HYDREX SP is compatible with metals, plastics and elastomers that are compatible with water-based organic and inorganic saponifiers and detergents. It does not affect polymeric tank and/or plumbing materials of construction such as PP, PE, PVC or CPVC.

Safety and Toxicity Please see Material Safety Data Sheet for detailed information.

Disposal For external disposal, contact your current or local environmental service company for wastewater disposal options. While HYDREX SP is considered non-hazardous, materials cleaned such as solder pastes, which contain heavy metals, may make HYDREX SP wash baths hazardous.

Packaging HYDREX SP is available worldwide in 5-gallon and 55-gallon containers. For samples, contact your Petroferm sales representative.

Shipping This product is classified as non-hazardous. No special packaging is required to ship by air domestically or internationally.

- Handling** Petroferm recommends that operators always use protective safety glasses and gloves when handling process chemicals such as HYDREX SP. Gloves made of nitrile or Buna N are recommended.
- Storage** HYDREX SP is considered to be non-flammable and non-combustible by the (US) National Fire Protection Agency and therefore its storage is not regulated. The product should be stored in the original container, preferably in a ventilated, fire-resistant building.
- Shelf Life** The shelf life for this product is indefinite when it is stored in its original, sealed container at room temperature. However, the product should be inspected after the designated date on the product label (twenty-four months from the date of manufacture) prior to customer use.

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