



High Performance Eco-Cleaning™

ECO-STENCIL™ AQ Batch Stencil Cleaner 1572



Introduction



Designed for ultrasonic and spray-in-air systems, Eco-Stencil AQ batch stencil cleaner offers great cleaning performance with much lower environmental impact. Effectively removes all types of solder paste (e.g. water-based, RMA, no-clean, lead-free) and uncured adhesives from stencils and misprinted boards.

When a water rinse is a part of the cleaning process, Eco-Stencil AQ provides an economical, yet powerful cleaning solution. This water-based cleaner uses the latest in environmentally friendly surfactants to break down pastes and adhesives. Concentrated formula saves shipping and storage cost.

Drop-in replacement for semi-aqueous and aqueous cleaners. Eco-Stencil AQ can be used in all the most popular cleaning equipment: Aqueous Technologies, Austin America Technologies, SmartSonic, EMC Global, and more. Eco-Stencil AQ works with current filtration methods, providing a long bath life and minimized disposal cost.

Eco-Stencil AQ batch stencil cleaner has been tested and proven compatible with every part of your stencil — from the frame, screen and stencil to the adhesives binding it together.

Eco-Stencil™ Cleaner is fully compliant with CARB (California Air Resource Board) requirements. Also compliant with European REACH (Registration, Evaluation, Authorization & Restriction of Chemicals) and WEEE (Waste Electrical and Electronic Equipment Directive) initiatives. It does not contain RoHS (Restriction of Hazardous Substances) restricted substances, SVHC (Substances of Very High Concern) list substances, or halides.

Features / Benefits

- Non-Flammable
- Quickly Clean Paste or Uncured Adhesive
- Effective on all solder pastes: Lead, Lead-Free, Aqueous, RMA & No-Clean
- Safe for Stencils, Misprinted Boards & Cleaning Equipment
- Biodegradable
- Low VOC, zero GWP
- Non-Ozone Depleting
- Halide-Free — Prevents Ionic Contamination
- pH in neutral range (6-9 pH) — Avoid Corrosion

Applications

- For use in batch stencil cleaners with automatic or manual rinse
- Dilution: Mix 1 part Eco-Stencil AQ to 9 parts DI water

AUTOMATIC STENCIL CLEANER GUIDE

Key: ● = Best ○ = Off-line Rinse Required

Equipment Manufacturer	Equipment Type	1572 Eco-Stencil AQ
Aqueous Technologies	Ultrasonic, no rinse (e.g. StencilWasher-ECO)	●
Austin American Technologies	Spray-in-air, rinse (e.g. X30A)	●
	Spray-in-air, rinse (e.g. X30C)	●
EMC Global	Spray-in-air, no rinse (e.g. Cyber Clean 1000)	○
	Spray-in-air, rinse (e.g. CyberClean 3000)	●
Manncorp	Spray-in-air, rinse (e.g. 201SC)	●
	Ultrasonic, rinse (e.g. StencilWasher-ECO)	●
PresSure Products	Ultrasonic, no rinse (e.g. N29TP)	○
SmartSonic	Ultrasonic, rinse (e.g. Model 900)	●
	Ultrasonic, rinse (e.g. Model 2003)	●

About TECHSPRAY RENEW™

TECHSPRAY RENEW™ is a brand that represents **High Performance Eco-Cleaning™**.

Techspray® has applied our expertise in solvent cleaning to formulate some of the most effective eco-friendly cleaners on the market. Performance is our top priority, using the best "green" solutions as they become available. We all are at the cusp of the ongoing movement toward sustainable products, packaging, and processes. It is Techspray's intention to stay at the cutting-edge while keeping our products powerful and cost effective.

Directions

- **DILUTION: 1 PART ECO-STENCIL AQ : 9 PARTS DI WATER**
- Used as directed in your batch stencil cleaner equipment instructions.
- Add 9 parts deionized (DI) water to every 1 part Eco-Stencil AQ. Mix thoroughly.
- Higher concentration can be used to clean more difficult soils or the increase cleaning speed.
- A common method of checking concentration is by BRIX refractive index. For reference, the following concentrations and readings are provided.

Stencil Cleaner AQ - Refractive Index

DILUTION	ND	BRIX
5%	1.337	2.7
8%	1.340	4.6
10% (recommended)	1.342	6.1
12%	1.343	7.1
14%	1.345	8.2
16%	1.347	8.2

DILUTION	ND	BRIX
18%	1.349	9.5
20%	1.350	11.3
22%	1.353	13.1
24%	1.354	14.1
100% (concentrate)	1.419	49.3

Chemical Components

Component	CAS#
3-methyl-3-methoxy-1-butanol.....	56539-66-3
Aliphatic Ethoxylated Alcohols.....	78330-20-8
Dimethyl-2-methyl glutarate.....	14035-94-0
Ethoxyl-Propoxyl Terpene	174955-61-4
Poly(oxy-1,2-ethanediyl), a-hydro-w-hydroxy-	25322-68-3

Chemical Properties (MSDS available on request)

Properties based on diluted material, as recommended for use in batch system.

- EXPOSURE LIMIT: Limits on components not established.
Manufacturer's recommendation 1000 ppm.
- PHYSICAL STATE: Liquid
- ODOR: Clean ethereal odor
- APPEARANCE: Clear, mobile liquid
- pH: 7-8
- BOILING POINT : 97°C (207°F)
- FLASHPOINT AND METHOD (TAG Closed Cup): None to boiling point
- SOLUBILITY IN WATER: Fully miscible
- DENSITY: 1 at 25°C
- VOC (by wt): 5% by weight (EPA)

Performance

Ultrasonic

Test method: Stainless steel stencil coated with 5 different pastes (Kester EM907 no-clean lead-free, NXG1 no-clean lead-free, H531 OA lead, FL250D no-clean lead, and Alpha Metals RMA lead RMA390) and allowed to fully dry over at least 8 hours. Branson 5200 ultrasonic used to simulate sonics used in batch stencil cleaners. After allotted time, samples rinsed under DI water. If no visible flux residues or solder spheres present, the stencil is considered clean and the time logged. Cleanliness judged with 10X visual inspection per IPC-7526 "Stencil and Misprinted Board Cleaning Handbook".

Temperature	Eco-Stencil AQ (10%)	IPA (70%)	Kyzen Lonox L5611 (10%)	SmartSonic 440R (10%)
68°F (20°C)	Clean in 2 min.	Clean in 2 min.	Clean in 3 min.	Clean in 3 min.
100°F (38°C)	Clean in 2 min.	*	Clean in 2 min.	Clean in 2 min.
120°F (49°C)	Clean in 1 min.	*	Clean in 2 min.	Clean in 1 min.
140°F (60°C)	Clean in <1 min.	*	Clean in 1 min.	Clean in <1 min.

* IPA not tested at elevated temperatures because of flashpoint.

Spray-in-Air

Test method: Eco-Stencil AQ tested on a stainless steel stencil in Austin American Technologies X30A Stencil Cleaner using 4 different pastes (Kester EM907 no-clean lead-free, NXG1 no-clean lead-free, H531 OA lead, and FL250D no-clean lead). Cleanliness judged with 10X visual inspection per IPC-7526 "Stencil and Misprinted Board Cleaning Handbook".

The following were the results results:

- Paste was removed from stencil in less than 1 minute into the cleaning cycle
- Foaming was minimal even after 20 minute cycle

Compatibility

The goal of compatibility testing is to test until the point of failure. Test parameters are generally extreme and accelerated, so go beyond the real world environment. Techspray considers Eco-Stencil AQ compatible within normal operating conditions of batch stencil cleaning and with exposed materials normally found in the equipment and stencils.

Common Stencil Materials

Test method: 48 hour immersion at 60°C.

Key: *Excellent = no effect that impacts functionality*

Material	Compatibility
Aluminum frame	EXCELLENT
Stainless steel stencil	EXCELLENT
Epoxy strip adhesion to frame	EXCELLENT
Epoxy strip adhesion to screen	EXCELLENT
Epoxy adhesion between screen & stencil	EXCELLENT
Loctite 420 adhesive	EXCELLENT
Loctite Hysol 1C adhesive	EXCELLENT

Test method: 48 hour immersion at 60°C.

Stencil identification: Labels and permanent marker (e.g. Sharpie) may be removed by prolonged or repeat exposure to Eco-Stencil AQ. Scratching stencil identification into frame avoids this issue.

Plastics

Test method: 7 day immersion at 60°C.

Key: *Excellent = no effect on stressed and unstressed plastic.*

Material	Compatibility
PTFE*	EXCELLENT
PVC*	EXCELLENT
HDPE*	EXCELLENT

* Common plastics in batch stencil cleaners

Elastomers

Test method: 7 day immersion at 60°C.

Key: 5 = Swelling between 0-5%, no shrinkage
 4 = Swelling between 6-20%, <5% shrinkage
 3 = Swelling between 21-30%, <5% shrinkage
 2 = Swelling between 31-50%, <5% shrinkage
 1 = Swelling over 50%, over 5% shrinkage
 0 = Full dissolution, >5% shrinkage

Material	Compatibility
Silicone*	5
Santoprene	0
Hypalon	1
Epichlorohydrin	1
Viton	1
EPDM	4
Neoprene	4
Butyl rubber*	5

Material	Compatibility
Polyurethane	2
Nat. gum rubber	3
Buna-N	4
Oil Resist Vinyl	0
Buna-S	4
Sorbothane	4
Kelrez 6375	5
Kelrez 7075	5

* Common elastomers in batch stencil cleaners

Metals

Test method: 48 hour immersion at 60°C.

Key: 5 = No tarnish or oxidation, no metal loss
4 = Slight tarnish or oxidation, <0.2% metal loss
3 = Slight tarnish or oxidation, 0.21-0.5% metal loss

2 = Slight tarnish or oxidation, >0.5% metal loss
1 = Heavy tarnish or oxidation, >0.5% metal loss
0 = Full dissolution

Material	Compatibility
Brass foil	3
Copper foil	4
Nickel 200	4
Aluminum 7075	3
Aluminum 6061 T6	3

Material	Compatibility
Aluminum 2024	3
Stainless Steel 316*	5
Stainless Steel 304*	5
Mild carbon steel	1
Galvanized Steel	1

* Common metals in batch stencil cleaners

Note: Eco-Stencil™ AQ is a water-based formula, so will encourage oxidation with prolonged exposure to iron, steel, and other susceptible metals.

Environmental Policy

Techspray® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Packaging and Availability

Eco-Stencil™ AQ Cleaner available in the following sizes:

1572-Q	1 quart (0.95L) w/trigger sprayer Makes 2.5 gal (9.5 L) @ 10%
1572-G	1 gallon (3.8L) Makes 10 gal (38 L) @ 10%
1572-5G	5 gallon (19L) Makes 50 gal (190 L) @ 10%

Available as special order, call for pricing:

1570-54G	54 gallon (205L) Makes 540 gal (2052 L) @ 10%
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Resources

Techspray® products are supported by global sales, technical and customer services resources.

For additional technical information on this product or other Techspray® products in the United States, call the technical sales department at 800-858-4043, email tsales@techspray.com or visit our web site at: www.techspray.com.

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