



Swabs Selection Guide

WHY USE A SWAB?

Swabs are often thought of just tufts of cotton fibre wrapped around a stick. And while cotton swabs have their uses, more complex solutions are needed for critical industries like medical device assembly, cleanroom, electronic manufacturing, and PCB assembly.

Swabs are useful precision tools for technicians and operators to perform delicate and meticulous tasks like precision cleaning, repair and assembly.

SWAB TYPES

The following swab types are available from Chemtronics

Cotton Swabs

The most common swabs has moderate absorbency, a soft head and is low cost. It can be used in many different industries. It is ideal for one-time use, but leaves fibres behind. In comparison to our other swabs, they aren't as strong or durable.

Foam Swabs

An upgrade from cotton due to the cleanliness and toughness. It is economical, does not leave behind fibres and ideal when used with alcohol. We don't recommend to scrub with harsh solvents like toluene and ketones.

Polyester

Polyester is resistant to even more solvents and has a better scrubbing ability than foam swabs. They are the best for sampling due to its great absorption and release ability. The polyester swabs are the lowest in non-volatile residue.

Electro-Static Dissipative Swabs

These swabs can be made out of foam or polyester. They protect delicate microcircuits from static discharge damage which can destroy or weaken sensitive microcircuits.

Wrapped Swabs

Can be made from cotton, foam or polyester and have no sealed edges, so no risk of scratching delicate substrates. No sealed edges reduces the amount of particle since most particles come from cut edges. It has high and low areas, the high spots wipe the surface like a squeegee and the low spots collect the soils.

SELECTION REVIEW

When choosing a swab for cleaning, the substrate and soil must be considered. These conditions dictate if a cleaning solution is required and what kind is necessary.

Identify the substrate

Determining the substrate will narrow down the type of swab that is necessary. It also helps limit the type of solvents that are available to your application.

Identify the soil

Determine if it's easy to remove dust, particulates, and light oils or difficult to remove soils such as greases, fluxes, adhesives, waxes and coatings.

Decide if a cleaning solvent is necessary

By now you will have enough information to know if and what kind of solvent is necessary.

Select your swab

For gentle cleaning with nothing or a mild solvent, any swab is applicable. Foam for **cost effective, quick single use**, softness, and conformity to a surface. Polyester for highest cleanliness and highest strength. For **aggressive cleaning** with a chemical, consider a swab made from polyester. We also recommend polyester for if you are looking for the highest level of cleanliness or need to clean an abrasive surface. If you are working on **sensitive electronics**, we recommend one of our ESD-Safe swabs.

Match the swab size and shape to the area, recess, or crevice that you want to clean to determine which swab will suit your application.

Precision Tools Used For



Semiconductor



Aviation



Fiber Optics



Disk Drive

In precision cleaning applications, swabs can be used on their own to remove contamination. However, often swabs are used together with a solvent to remove contamination. The success of cleaning effort depends in part on the compatibility between the swab and the solvent. The following chart is a quick reference guide to what swab materials are compatible with the various solvents.

Swabs Solvent Compatibility

Solvent	Head Material		Handle Material	
	Foam	Polyester	Polypropylene	Acrylic (ESD)
Acetone	U	U	U	D
Acetonitrile	U	U	U	D
Benzene	S	U	U	D
Dimethylformamide	D	S		
Ethyl Acetate	S	U		
Ethyl Alcohol	U	U		
Hexane	U	U	U	U
Hydrochloric Acid 48%	D	D	U	U
Hydrogen Peroxide	D	U		
Isopropyl Alcohol	U	U	U	U
Methanol	S	U	U	U
Methyl Ethyl Ketone	S	U		
Toluene	S	U	U	D
Water	U	U	U	U
Xylene	S	U	U	D

Key : D- Degrades; S - Swells; U - Unaffected






Polyester & ESD Swabs

Featuring knit fabric heads, **polyester swabs** are acid and solvent resistant. Coventry sealed polyester swabs have the strongest seams available and will not generate loose fibers or particulates. They are ideal for tough scrubbing around raised shapes.

The **static dissipative swabs** have handles made from dissipative plastic alloy to **dissipate 99% of a 5kV in less than 2 seconds**.

COVENTRY™





Polyester Swabs are constructed from either a non-woven or a knit fabric. The head is thermoformed and welded to the handle in a single step using a proprietary process that yields an exceptionally clean swab that will not fall apart. These swabs are acid and solvent resistant, including acetone.

Part Number	Head		Handle			Shape
	Width in mm	Length in mm	Length in mm	Width in mm	Material	
36060	5.3 x 4.8	19.0	147	3.1	Polypropylene	
38040	3.0 x 2.3	11.2	69	2.3	Polypropylene	
38540	3.0 x 1.0	11.7	69	2.3	Polypropylene	
52121	6.6 x 6.1	10.2	160	3.1	Glass Filled Nylon	
51125F	6.4 x 5.8	10.2	71	2.5	Glass Filled Nylon	

	Industries			Uses		
	Aerospace	Cleanroom	Semiconductors	Applying Adhesives	Particle Removal	Cleaning Validation
Performance	●	●	●	●	●	●

COVENTRY™

Coventry Static Dissipative Technology Swabs are engineered to eliminate static electricity concerns. The handles of these Coventry swabs are static dissipative. They are non-contaminating and have excellent solvent compatibility, even acetone. These swabs are a perfect choice for cleaning static sensitive components and working around static sensitive parts. These handles are available with with foam or polyester heads.

Part Number	Head		Handle			Shape
	Width in mm	Length in mm	Length in mm	Width in mm	Material	
41050ESD	3.6 x 3.3	10.2	71	2.5	Dissipative Plastic Alloy	
44070ESD	3.3 x 2.8	9.9	81	2.5	Dissipative Plastic Alloy	
38040ESD	3.0 x 2.3	11.2	69	2.3	Dissipative Plastic Alloy	
36060ESD	5.3 x 4.8	19.0	147	3.1	Dissipative Plastic Alloy	

	Industries			Uses		
	Disk Drive	Fiber Optics	Medical Devices	Tight Crevices	Particle Removal	Microscopic Work
Performance	●	●	●	●	●	●

● Good Performance ● Excellent Performance ○ Not recommended

Swabs for Static Control

Many electronic devices and printed circuit boards have circuits that can be damaged by rapid high voltage electrostatic discharge. A source of the static field can be generated by the material of the swab rubbing against the surface and tribocharging. The risk of ESD damage can be reduced by using a swab with a static dissipative handle. **Not all ESD-safe swab handles are created equal. Make sure you choose the correct one.**



Black ESD-safe handles

These are usually polypropylene handles, saturated with conductive carbon black pigment. They dissipate the static charge but the pigment can leave a conductive black or gray mark, which may cause electrical problems.



Clear and cloudy translucent ESD-safe handles

Generally these contain acrylic, which can partially dissolve, become sticky, swell and soften when used with aggressive solvents like toluene or acetone.



Blue translucent ESD-safe handles

These are made of polypropylene/dissipative plastic alloy that is as dissipative as the other materials but is virtually impervious to aggressive solvents.



- ✓ Excellent strength and solvent compatibility
- ✓ Does not generate loose fibers or particles
- ✓ Low ionic, non-volatile residue, and particle contamination
- ✓ Clean sensitive surfaces in optics
- ✓ Clean aerospace hardware