

PRECISION CLEANING SOLUTIONS

ACOTA

Specialty material solutions

WELCOME

For over 20 years Acota has been the distributor of choice for specialist material solutions, keeping the wheels of industry turning throughout the UK and Europe.

Our product range covers a breadth of applications including:

 PRECISION CLEANING	 CIRCUIT BOARD PROTECTION	 MOULD RELEASE	 HEAT TRANSFER & COOLING
 DIELECTRIC FLUID	 FINGERPRINT DEVELOPMENT	 BATTERY ELECTROLYTE	 SILICONE DEPOSITION
 GLASS COATING	 SURFACTANT	 ADDITIVES	 SPECIALIST PRODUCTS

With a highly experienced technical team, including chemists, we facilitate and deliver the most appropriate resolution for your requirements; from the supply of a suitable product, through to a turnkey solution including equipment specification, chemical selection and aftersales services, together with waste stream management.

PRODUCT TRIALS

Our customers often take the opportunity to test products before purchase. We can provide product to you for testing in your process or we offer the facility to clean your product at our premises where we can analyse the efficiency of the cleaning process at a molecular level to view any contaminants remaining.

INDUSTRY LEADING MANUFACTURERS

We partner only with industry-leading companies who share our values and are committed to providing safe, high performance products with minimal environmental impact.

3M

3M™ Novec™ Engineered Fluids for precision cleaning are versatile, non-flammable, high performing products. They're used in vapour degreasing and ultrasonic cleaning systems, or in aerosols or hand-wipes, and offer excellent performance and low toxicity, along with a strong environmental profile.

They present a safer, more cost-effective alternative to harmful degreasing solvents such as trichloroethylene (Trike), perchloroethylene (perc) and n-propyl bromide (npB) – and balance industry requirements for performance, safety and environmental protection.

Acota is the sole, authorised distribution channel, in the UK, of 3M™ Novec™ Engineered Fluids.

INVENTEC

Inventec™ is one of Europe's leading Performance Chemical companies. Inventec specialise in formulating a large range of surface cleaning products for industrial applications. Its Topklean™ range of products are widely used together with 3M Novec fluids in a co-solvent process.

SOLVAY

Solvay Solexis manufacture Fluorolink®, a range of versatile products based on perfluoropolyether technology, which, when applied to a surface treatment or incorporated into a formulation, provides exceptional properties to a material such as lower surface energy, higher contact angle, reduced coefficient of friction, increased biocompatibility and better oleo-hydrophobicity. Acota is the sole European distributor for the Solexis Fluorolink® product range.

ESSECO

Esseco manufactures a comprehensive range of aqueous precision industrial cleaner concentrates. From a low-foam spray cleaner with a lower pH, through to rust inhibitors and inorganic based cleaners designed for aluminium, magnesium and titanium alloys and aircraft industry specifications. Rolls Royce and Boeing have approved its M-Aero product for use, amongst others.





OUR COMMITMENT TO YOU

Customers rightly demand consistently high standards in the three key areas of safety, performance and environmental impact, so it is essential that we provide a range of products that meet, or exceed, all expectations.

SAFETY

- Non-flammable
- Low toxicity
- Stability – no need for acid acceptance testing or maintenance of stabilisers
- REACH (Registration, Evaluation, Authorisation and restriction of Chemicals) compliant
- RoHS (The Restriction of Hazardous Substances Directive 2002/95/EC) compliant
- Safe to use without restrictions
- No operator certificates required
- No need for extraction
- Non-CMR (Carcinogenic, mutagenic and reprotoxic)
- Non-irritant
- Varying pack sizes for ease of handling, storage and use

ENVIRONMENT

- Zero Ozone Depletion Potential (ODP)
- Low Global Warming Potential (GWP) with a short atmospheric lifetime
- Low water solubility
- Not a hazardous air pollutant

PERFORMANCE

- High solvency
- Materials compatibility - all metals, most elastomers and most plastics
- Drop in replacement
- Low surface tension
- Specification compliance





PRECISION CLEANING

In today's regulatory landscape the selection of a specialty cleaning fluid and the most appropriate process can be challenging.

Users must evaluate performance, environmental impact, safety and cost before making their choice of how to remove a contaminant from the surface of a component. Acota works with global industry leaders to ensure the products it supplies are the best available on all of these counts.

Precision cleaning is most often required where a component is part of a critical system, sometimes life critical. Selecting the right specialty fluid to fulfil the requirement is an important factor to ensure complete removal of any risk and often, compliance with an approved standard.

Precision cleaning is often categorised with soils graded according to ease of removal.

LIGHT	MEDIUM TO HEAVY
Light oils	Lubricants
Halogenated compounds	Low MP waxes
Particulates	Polishing fluids
Release agents	Buffing compounds
Light flux residue	RMA flux
	No clean flux

Whatever soil you are trying to remove, one of the following processes will remove it safely and effectively:

- Hand / Aerosol cleaning
- Aqueous Cleaning
- Hermetically Sealed Cleaning
- Solvent Cleaning
 - Mono-solvent Cleaning
 - Bi-solvent Cleaning
 - Co-solvent Cleaning



HAND / AEROSOL CLEANING

Non-flammable aerosols combine effective cleaning and convenience, with safety. They are suited to many critical cleaning applications, including electronics, electro-mechanical devices, instrumentation, electrical contacts and connectors.

- Evaporate quickly and completely
- Leave no residue
- Non-corrosive
- Non-conductive
- Penetrate deep into tight clearances

	NOVEC CONTACT CLEANER PLUS	NOVEC CONTACT CLEANER/LUBRICANT	NOVEC ELECTRONIC DEGREASER	NOVEC FLUX REMOVER
Cleaning strength	Medium duty	Medium duty	Heavy duty	Heavy duty
Plastic compatibility	Plastic-safe	Plastic-safe	May damage ABS, PS, acrylic and polycarbonate	May damage ABS, PS, acrylic and polycarbonate
Lubricant	None	Silicone based	None	None
Cleaning performance				
Particulate	+++	+++	+++	+++
Light oils	++	++	+++	+++
Heavy oils and greases	-	-	+++	+++
Hydraulic fluid	++	++	+++	+++
Rosin-based flux	-	-	++	+++
No-clean flux	-	-	++	++
Lead-free flux	-	-	++	+++

Rating Key: +++ Excellent ++ Very good + Moderate - Not recommended

RoHS/WEEE compliant	Yes	Yes	Yes	Yes
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AQUEOUS CLEANING

Aqueous cleaning is a process that uses a solution of detergent in water. Detergents can be complex formulations containing a number of components, each of which has a function but they generally fall into two categories:

- Those that chemically react with organic contaminants, converting them into water-soluble products
- Those that emulsify the organic contaminant with water

The chemistry of the detergent must be matched with the substrate and the contaminants.

Cleaning is usually carried out at an elevated temperature to increase the rate of chemical reaction. It is further enhanced by mechanical action, usually by spraying, either in air or under immersion; ultrasonic agitation of the liquid; or movement of the item within the liquid.

It may be necessary to follow the wash stage by one or more rinses in water, which may be purified. If dry components are required, it may be necessary to include a hot-air drying stage.

Cleaning is usually carried out at an elevated temperature to increase the rate of chemical reaction

HERMETICALLY SEALED CLEANING (UNDER VACUUM)

Cleaning is carried out in a single chamber enclosed machine process, using hydrocarbon solvents. These have a flashpoint above 55°C and include isoparaffins and modified alcohols. These chemicals have excellent solvency and are used in specially designed, completely sealed equipment, under vacuum, in order to aid easy removal of the residual solvent, i.e. the 'drying' process.

- Immersion in solvent – options within the cleaning chamber can be added, including sprays, rotation baskets and ultrasonics for more complex component cleaning
- Rinsing in clean product
- Final rinsing with solvent saturated vapour
- Drying under vacuum to ensure rapid removal of solvent



SOLVENT CLEANING

Using a solvent to clean component parts requires ultrasonic cleaning with filtration, followed by vapour rinsing and freeboard dry. It is a fast, effective method with some benefits over aqueous cleaning: Low maintenance cost of equipment, low solvent energy consumption and lower operating costs.

You can use either a single or dual solvent process depending on the constituents and complexity of the component and the type of contaminant.

MONO-SOLVENT CLEANING

Refer to diagram - (2) - (4) - (5)

Mono-solvent cleaning is where a single solvent is used in the cleaning process.

- The component part is lowered into an ultrasonic tank with transducers and a re-circulation and filtration system, containing a single solvent
- The component part is raised into vapour zone, above a second tank and held. This second tank is electrically heated to boil the solvent and the resulting vapour rinses the components dissolving any contaminant
- The component part moves to the chilled freeboard zone, allowing the solvent to evaporate and return to the sump
- The component part emerges clean and completely dry, ready for handling

It is a fast, effective method for cleaning simple components.

BI-SOLVENT CLEANING

Refer to diagram - (1) - (2) - (4) - (5)

A bi-solvent cleaning process is a two-part process using a heated dip tank to initially remove the majority of the contamination followed by the mono-solvent degreasing process. Often used with heavily contaminated products.

- Parts are immersed in a separate tank first with a pre-cleaning agent. This is carried out with heat and, sometimes ultrasonics
- Process continues as per mono-solvent cleaning

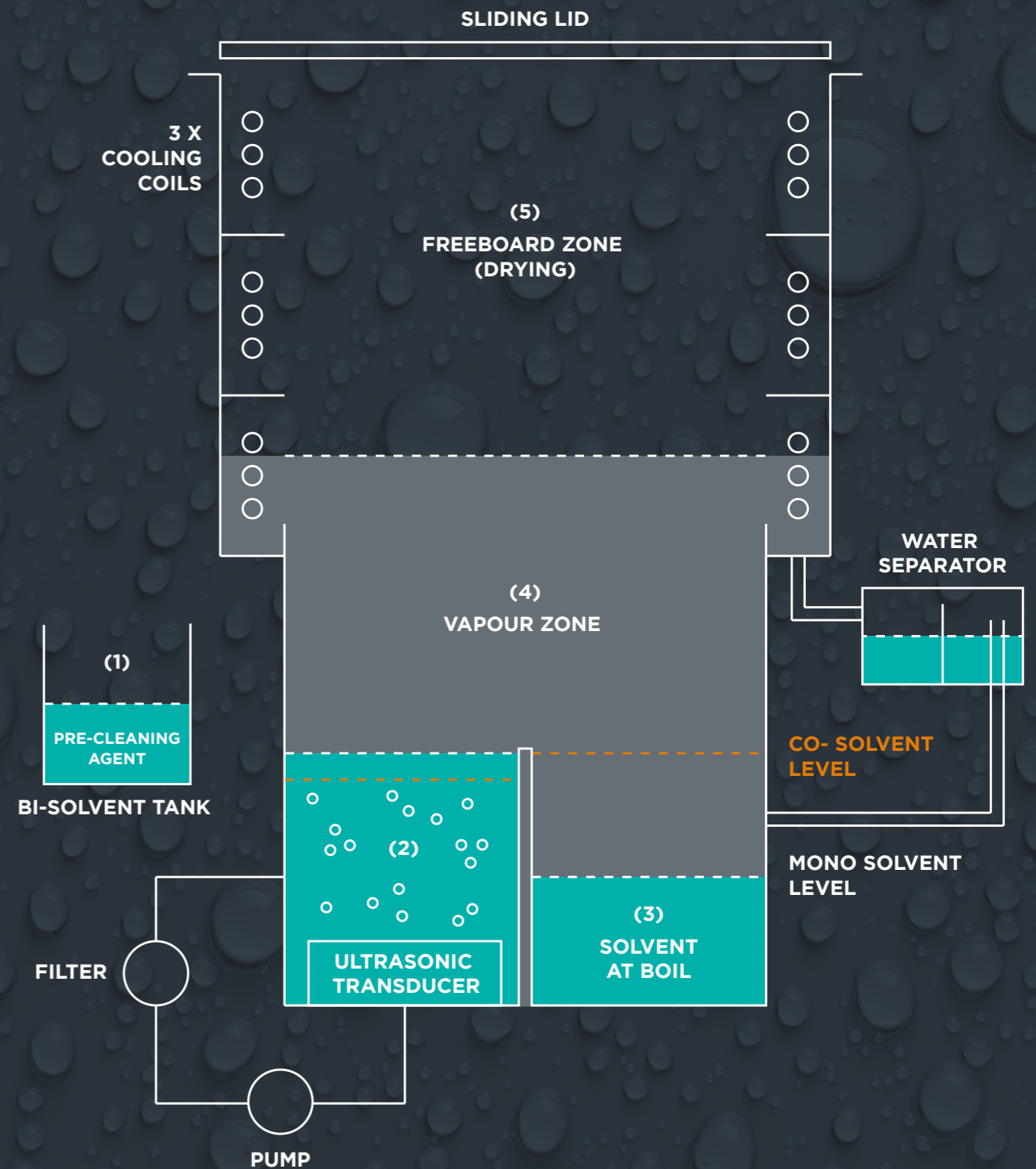
CO-SOLVENT CLEANING

Refer to diagram - (2) - (3) - (4) - (5)

Co-solvent cleaning combines high solvency power with excellent materials compatibility and allows removal of the most challenging of contaminants, such as heavy oils, greases and waxes with spot free drying. It uses two fluids in a process, a low-volatility organic solvent to dissolve the soils and a further suitable fluid to act as an effective rinsing agent to flush solvating agents from the surfaces.

- The component is lowered into an ultrasonic tank with transducers and a re-circulation and filtration system. This contains a solvating agent, which removes large amounts of the contaminant from the surface of the component
- The component is raised into vapour zone, and held. A second tank is electrically heated to boil a second solvent and the resulting vapour rinses the components dissolving any contaminant remaining on the part
- The component moves to the chilled freeboard zone, allowing the solvent to evaporate and return to the sump
- The component emerges clean and completely dry, ready for handling

It is a highly flexible process as allows the user great flexibility to adjust the process, such as varying the boiling point of the vapour degreaser. Common applications for this process include components with intricate shapes such as printed circuit boards or for removal of heavy soils such as wax polishing compounds.





TYPICAL APPLICATIONS

Specialty cleaning fluids are used in a multitude of sectors so we work with our customers to find the most appropriate, compliant and effective product for their needs. Outlined here are some of the industries that engage with us.

AEROSPACE

Specialty fluids are used in a variety of applications during the manufacturing process, in flight and for maintenance purposes.

OXYGEN SERVICE

The cleaning of liquid oxygen and gaseous oxygen (LOX / GOX) lines must be completely thorough. Any residues left behind after cleaning can prove hazardous. Any contaminant that comes into contact with pure oxygen has the potential to react violently so compatibility with the cleaning solvent is crucial.

3M™ Novec™ Engineered Fluids 7100 and 71DE are a long-term sustainable solution for many critical LOX/GOX applications, which have previously used HFC's. Novec™ 7100 is approved for cleaning and cleanliness verification of oxygen lines and systems at the NASA facilities responsible for the space shuttle.

DEFLUXING / CLEANING OF ELECTRONICS

Electronics and electrical circuits within the aerospace industry are critical in ensuring reliable and safe flight. Acota's ranges of specialty fluids are used extensively in the printed circuit board (PCB) industry to remove residual solder flux.



MICRO-MECHANICAL INCLUDES JEWELLERY AND WATCHMAKING

Precision cleaning of micro parts can be crucial for many reasons. It may be to ensure an aesthetically perfect; spot-free clean of jewellery or watch parts, or to ensure miniature high-speed bearings in dental instruments maintain longevity by removing debris. A speciality fluid, compatible for use with most metals, plastics and rubber, is needed to meet these requirements.



MEDICAL DEVICES

Infection is the enemy of all medical practitioners so it goes without saying that precision cleaning is one of the highest priorities in this industry.

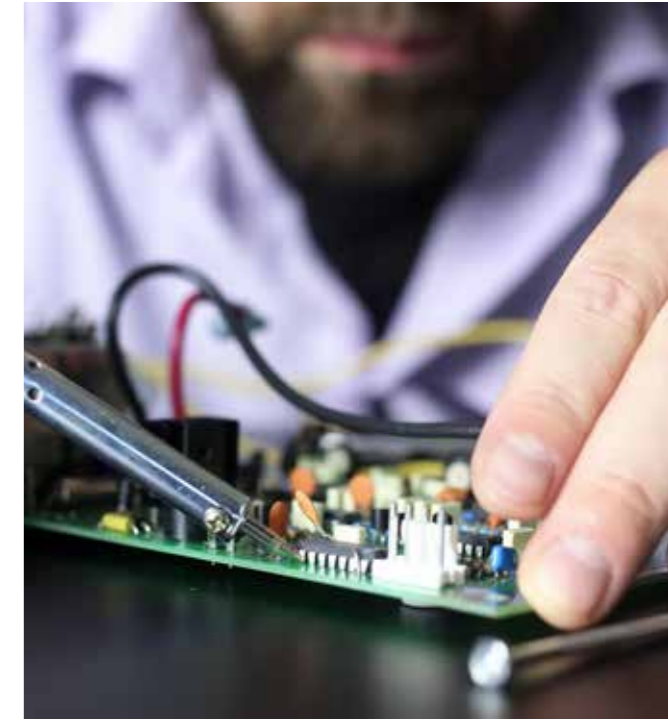
For use on medical implants, such as hip joints, that extend our active lives, or the medical tools, equipment and tubing that are used on a daily basis, speciality fluids ensure a spotlessly hygienic safe finish.

ELECTRONICS

Specialty fluids are used extensively by the electronics industry in the cleaning of printed circuit boards (PCBs) to remove solder flux residues.

These tough deposits are notoriously difficult to clean given the tight spaces on these components. Our recommended process offers:

- Low surface tension - to clean effectively under low stand off components
- Water free cleaning process with short drying time - reducing energy requirements
- Powerful cleaning agent for no-clean and lead-free fluxes which eliminates white residues
- Cleaning standards satisfy the requirements of ESA (European Space Agency), IPC (Institute for Printed Circuits), BS and MIL SPEC
- Excellent cost of ownership



OPTICS

Within the optics industry the use of water-based cleaning methods can leave unwanted spots on the surface of the material. Using a speciality fluid for cleaning or as a rinse agent will ensure that fibre optics; lenses or optical assemblies are left flawless with no residue.

AUTOMOTIVE

Specialty fluids are used extensively to precision clean critical automotive parts such as sensors, switches, compressors and fuel injectors.

Acota works with car manufacturers and motor-racing teams to help ensure that high performance standards are reached and maintained.





PRODUCT SELECTION GUIDE

We would always recommend speaking to one of our technical team to ensure selection of the most appropriate product for your requirement.

	MONO-SOLVENT			
	NOVEC 7100	NOVEC 71DA	NOVEC 71IPA	NOVEC 71DE
Soils	Fluorolubes, light oils, particulate	Flux, oils, silicone, fluorosilicone	Ionic soils, particulate, fluorolubes	Oils, silicone, fluorosilicone, fluorolubes
Class of Soils	Light	Light	Light	Medium
Solvent Strength	Mild	Mild	Mild	Strong
Electronics				
Circuit board assemblies		o		
Hybrid			o	
Fibre optics	o		ffi	
Components		o	o	o
Flex circuits			ffi	
Aerospace				
Instruments				o
Oxygen systems	o			ffi
Engines				
Maintenance				
Seals, gaskets			o	
Hydraulic tubes				o
Gauges	o			o
Medical				
Implants				
Staples, blades				
Needles				o
Catheters, plastics			o	
Silicone tubes, surgical tools			o	o
Polymer tube swelling	o	ffi		
Industrial / Automotive				
Bearings				
Decarbonisation				
Mechanical				
Metal forming				
Metal tubes				
Metal stampings				
Polishing compound				
Specialty Cleaning				
Optics			ffi	
Piezo electrics				
Fingerprint removal	o			ffi
PE/PU resin removal				

NOVEC 72DA	NOVEC 72DE	NOVEC 73DE	CO-SOLVENT	BI-SOLVENT	AQUEOUS	HYDROCARBON/A3 SYSTEMS
Flux, ionic soils, silicone, fluorosilicone	Grease, oil, wax, silicone	Grease, oil, wax, silicone	Wax, pitch, grease, flux	Grease, oil, wax, silicone, flux	Grease, oil, wax, silicone, flux water based oils	Grease, oil, wax, silicone, flux
Heavy	Heavy	Heavy	All	All	All	Heavy
Strong	Strong	Very strong	Variable	Very Strong	Variable	Variable
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