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WHY test for Ionic Contamination?

Ionic contamination is a leading cause in the degradation and corrosion of electronic assemblies, leading to lifetime limitation and field failure (Fig. 1) .

Ionic residue comes from a variety of sources shown in Fig. 2 opposite:

Examples of ionic contaminants:

Anions	Cations	Weak Organic Acid
Bromide	Ammonium	Acetate
Chloride	Calcium	Adipate
Fluoride	Lithium	Formate
Nitrate	Magnesium	Glutamate
Nitrite	Potassium	Malate
Phosphate	Sodium	Methane Sulphonate
Sulphate		Succinate
		Phthalate

Fig. 1

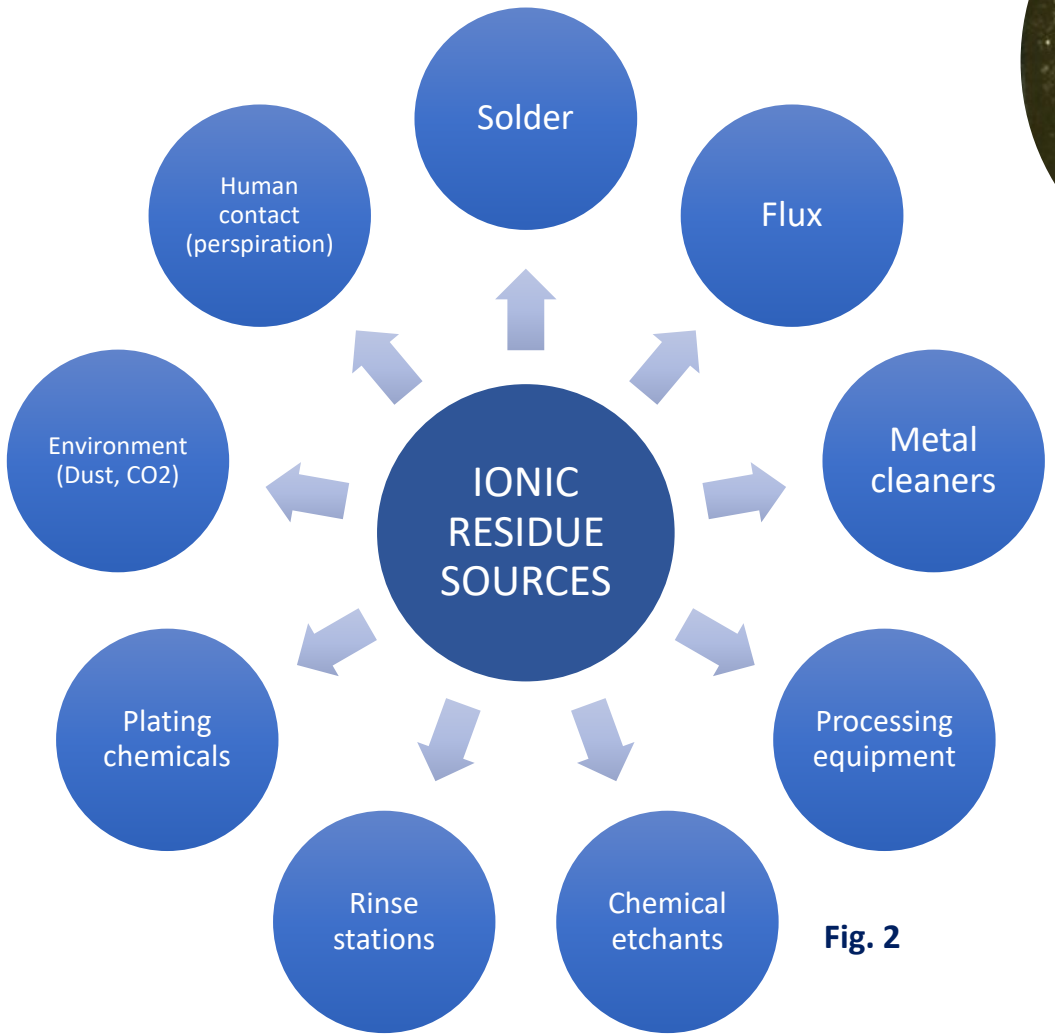

Fig. 2

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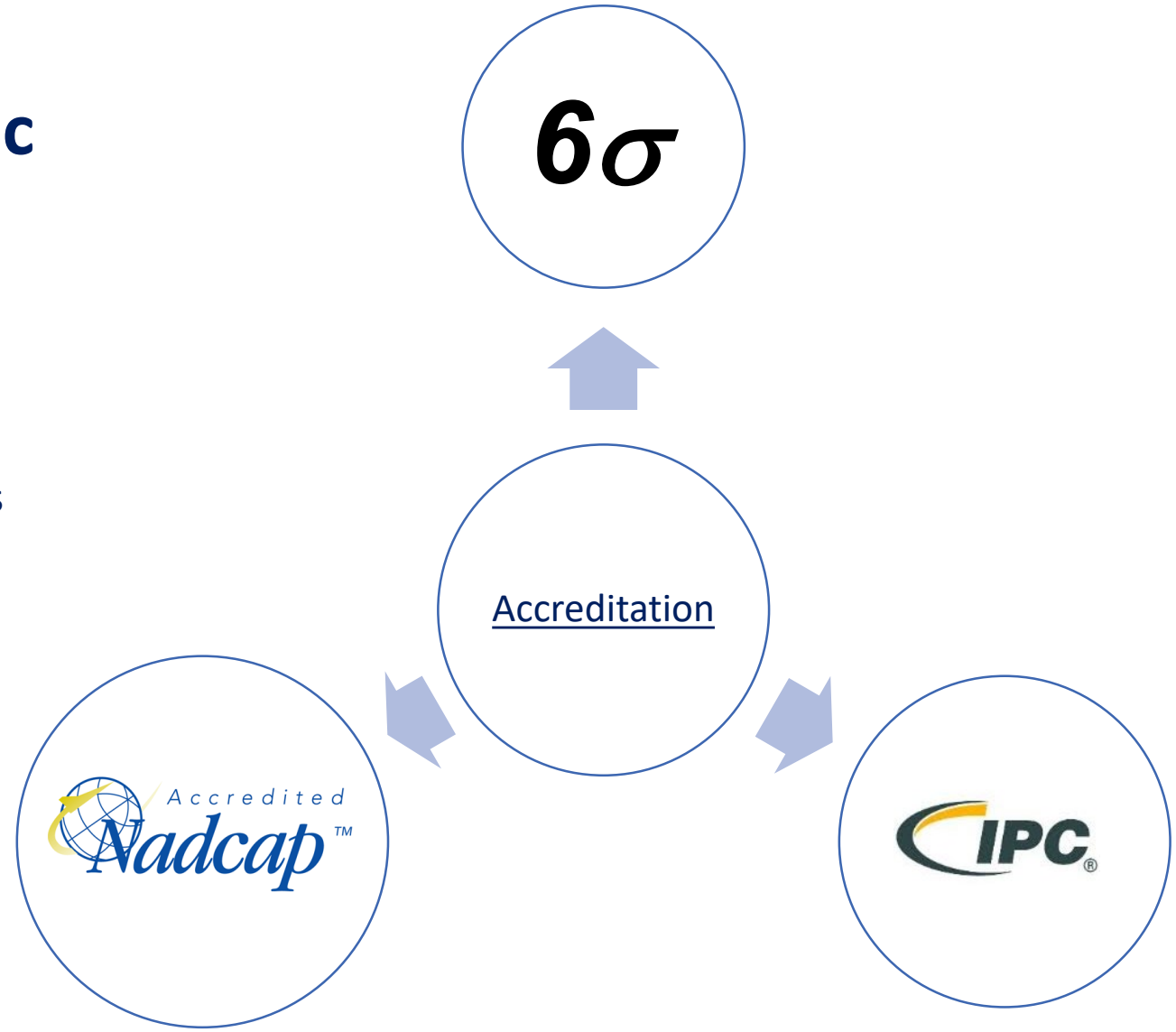
WHO should test for ionic contamination?

Ionic contamination is a leading cause in the degradation and corrosion of electronic assemblies, leading to lifetime limitation and field failure.

- Printed Circuit Board (PCB) manufacturers
- Surface Mount Technologies (SMT)
- Electronic Component manufacturers
- Electronic Manufacturing Services (EMS)
- Aerospace
- Avionics
- Military & Defense
- Automotive
- Scientific instrumentation
- Telecommunications



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WHEN to test for ionic contamination?

- Any time during PCB assembly and processing
- Finished devices
- Prior to conformal coating or potting
- Before and after cleaning process
- Goods inwards/outwards

HOW to test for ionic contamination

There are various methods available for testing ionic contamination, as listed below:

Name	Method	Pros/Cons
Surface Insulation Resistance (SIR)	Measure of the resistance of electrical flow across the traces on a PCB caused by conductive contamination.	A full SIR test takes 28 days, utilizing a large machine and serious system calibration; it's often destructive, expensive and usually outsourced.
Ion Chromatography (IC)	After thermal extraction, the solution undergoes testing in an ion chromatograph. It distinguishes between different ionic contaminants.	Very expensive and usually outsourced.
Resistivity of Solvent Extract (ROSE) → **IONOGRAPH**	PCB immersed into a tank filled with solvent extract solution. Ionic species are drawn into the solution. A change in solution conductivity or resistivity measures bulk ions per PCB surface area.	Quick, easy to perform, in-house, compact, accurate, non-destructive and comparably inexpensive.

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SCS SPECIALTY COATING SYSTEMS™ A KISCO Company

WHY choose an SCS Ionograph?

SCS offer a wide choice of tank sizes with large tanks available, a heated test fluid option, submerged jet agitation, baseline stabilisation & correction, highly sensitive conductivity probes, enhanced resolution & accuracy and interchangeable consumables.

Equipment Feature	Equipment Benefit	Workflow Benefit
Various tank (test cell) sizes	Quickly test various sized parts/components/boards/devices	Versatile, suitable for full parts testing
Heated test options, submerged agitation jets, baseline stabilisation	Enhanced sensitivity and operational efficiency	Accurate, reliable and reproducible results
Easy access door panels, easy to fit components, stainless steel structure	Easy routine maintenance and upkeep, durable, easy to clean, corrosion resistant	Long life span and reliability, maintain peak performance
Powerview software, data handling, USB/internal data storage, validation	Collect, analyse, store & output data, optimise performance, adhere to ICP-TM-650, ICP-TR-583, ANSI/J-STD-001, MIL-P-28809, MIL-STD-2000A, DEF-STD 10/03, NASA-STD-8738.1B, IEC, NADCAP standards	Streamlined workflow, audit ready, regulatory compliance
Compact design	Small foot print	Free up valuable work space