99.9% Pure Anhydrous Isopropyl Alcohol (IPA)

Description

The Isopropyl Alcohol (IPA) liquid is a high purity cleaner and solvent. The purity level meets Grade A standard for MIL Spec TT-I-735A and ASTM D770, ensuring that no contamination occurs from its use.

As a cleaner, it is fully miscible in water and most organic fluids, making it good at dissolving dirt, light organic contaminants, and ionic flux residues. Since the IPA is highly anhydrous (without water) and hygroscopic (absorbs humidity), it readily scavenges water off surfaces, trapping the water in the IPA solution as an azeotropic mixture. This helps to dehumidify surfaces.

As a solvent, it acts as a moderate evaporation, 'plastic safe' diluent (see compatibility chart) and is used to improve the properties of paint resins and other heterogeneous solid mixtures. Therefore, it serves as a useful carrier solvent to adjust the rheological properties and compatibilities of complex mixtures. Due to IPA's volatility, it resists entrapment in the coating. As it dries, it gives off a very light odour, which is not bothersome but serves as a cue to limit over-exposure due to poor ventilation.

Applications and Usages

Since the IPA is safe for most plastics, seals, ceramics, and printed circuit board components, it is used heavily in the electronics industry. It is great for cleaning screens, stencils, fiber optics, cables, keypads, printed circuit board components, or electrical contacts and connectors. It is also used to clean oxides and grime on audio or video tape heads. It effectively removes light greases, oils, and flux without adding additional residues to contacts, relays, and circuit boards connectors. It is quick drying relative to water. Further, it can be used to wash off more aggressive organic solvents like acetone or toluene.

Features and Benefits

- Suitable for Use in Food Facilities as a Non-Food Chemical - Canadian and NFS recognition letters available on request
- Meets MIL Spec TT-I-735A and ASTM D770
- Meets reagent ACS and USP/NF Grades
- Anhydrous solvent - Removes water and humidity from components leaving them dry
- Less than 0.001 g/100 mL non-volatile residues
- Excellent "Green Solvent" scores
- Safe for aqueous environments
- Low toxicity

Storage Properties

Properties	Value
Shelf Life @ 22°C (72°F)	5 Year
Storage Temperature Limits	-20°C to 40°C (-4°F to 104°F)

Store in cool, dry and well ventilated area.

Mil Spec #TT-I-735A

Physical Properties	Method	Value
Purity	Gas chromatography	> 99.8%
Water (w/w)	ASTM D 1364	≤ 0.10%
Colour (Pt-Co scale)	ASTM D 1209	≤ 5
Acidity (% of Acetic Acid)	ASTM D 1613	≤ 0.001
Density @ 20°C [68°F]	ASTM D 4052	0.785 - 0.786 g/mL
Specific Gravity @ 20°C / 20°C	ASTM D 4052	0.785 - 0.787 g/mL

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Physical Properties	Method	Value
Dilution Range	ASTM D 1078	
Initial Boiling Point	ASTM D 1078	≥ 81.8°C
Dry Point	ASTM D 1078	≥ 82.8°C
Nonvolatile Matter	ASTM D 1353	≤ 0.001g/100mL
Water Miscibility	ASTM D 1772	Clear and Miscible
Appearance	ASTM D 4176	Clear, free from sediment and suspended matter

Properties

Physical Properties	Method	Value
Odour	-	Mild alcohol
Colour	Visual	Colourless
Refractive Index @ 20°C (68°F)	ASTM D 1218	1.3766
Evaporation Rate (ButAc =1)	Literature	2.9
Heat Capacity	Literature	11 400 kJ/m (0.612 BTU * in/h * ft2 * °F)
Viscosity	Literature	3.4 cP
Safety Properties	**Method**	**Value**
Flammability	Literature	Highly flammable liquid and vapor
Flash Point	Literature	12°C (54°F)
Boiling Point	Literature	82°C (180°F)
Auto-ignition	Literature	425°C (797°F)
Volatile Organic Content (VOC)	Literature	100%
Environmental Properties	**Method**	**Value**
Toxicity for Aqueous Environment	Literature	Very low toxicity
Biodegration	Literature	Readily biodegradable

Solvation Parameters	Value	
Solubility in water (%wt)	∞ Fully Miscible	
Solubility for water (%wt)	∞ Fully Miscible	
Dielectric constant @ 20°C (68°F)	17.5	
Surface Tension @ 25°C (75°F) (dynes/cm)	21.4	
Hansen Solubility Parameters	$(MPa)^{½}$	$(cal/cm^3)^{½}$
Total	23.5	(11.5)
Non-Polar	15.8	(7.7)
Polar	6.1	(3.0)
Hydrogen Bonding	16.4	(8.0)

Note: Typical literature values

Compatibility

It is compatible with many plastics, seals, PCB components, paints, rubbers, and plant fibres.

Substrate Compatibility: Consult the IPA compatibility chart for a tentative compatibility list. These compatibility ratings should be considered as tentative due to variations in plastic manufacturers' formulations and additives, as well as the processing conditions during cleaning.

ATTENTION! Always perform a compatibility test on a non-critical area or a representative test substrate prior to use. Test even if the compatibility chart predicts a high compatibility: modern parts may incorporate undeclared sensitive materials (such as custom plastic blends, custom additives, protective coatings, or decorative coatings).

Plastics Compatibility Chart

Plastic Type	Resistance
Epoxy	Excellent
ABS (acrylonitrile butadiene styrene)	Fair to Poor
PMMA (acrylic and plexiglass)	Poor
PVC (polyvinyl chloride)	Excellent
HD-PE (high density polyethylene)	Excellent
LD-PE (low density polyethylene)	Excellent
PP (polypropylene)	Excellent
PS (polystyrene)	Excellent
PC (polycarbonate)	Excellent
Nylon	Poor to Severe

Note: Rating is given for room temperature only. Heating the solution generally decreases the chemical resistance.

LEGEND
Excellent = Negligible chemical attack over long exposures
Good = Slight attack with minor absorption over long exposures
Fair = Moderate attack with swelling, softening, loss of strength (may tolerate short term exposures)
Poor = Not recommended due to possible crazing, cracking, discoloration, or loss of strength
Severe Effect = Decomposition or dissolution after short exposures

Elastomers Compatibility Chart

Plastic Type	Resistance
Nitrile	Good
Neoprene	Good
Silicone	Excellent
Butyl Rubber	Excellent
Latex	Excellent
PVC (polyvinyl chloride)	Good
Polyvinyl Alcohol	Severe Effect
Viton	Excellent

Note: Rating is given for room temperature only. Heating the solution generally decreases the chemical resistance.

ATTENTION! Do NOT use on computer monitors, tablet screens, or eyeglasses. This solvent is too powerful for the coatings used on these devices.

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Application Instructions

Follow the procedure below for best results.

To clean residues

1. Imbibe clean cloth.
2. Wipe surface to be cleaned with cloth.

OR

3. Rinse area by pouring neat solution over it, with or without the use of a hog hair cleaning brush.

a. Ensure that wash runs off the circuit board along the shortest unencumbered path to prevent redeposit of solvated residues.

OR

4. (Exceptionally) Immerse component in a container filled with a fresh IPA solution.

ATTENTION!

The IPA is hygroscopic, which means it can absorb moisture from air.

Recap the bottle immediately after use to avoid water absorption.

Do NOT use in squeezable wash bottles since these containers allow humidity-absorption contamination

ATTENTION!

Immersion baths will immediately start to absorb moisture from the air, so the lifespan as a water-free solvent is very short.

Packaging

Part Number	Packaging	Net Volume		Net Weight	
MC002974	Bottle	475mL	16 fl oz	373g	13 oz
MC002975	Bottle	945mL	32 fl oz	742g	1.64lb

Part Number Table

Description	Part Number
99.9% Pure Anhydrous Isopropyl Alcohol (IPA) Electronics Cleaner, 475mL, Bottle	MC002974
99.9% Pure Anhydrous Isopropyl Alcohol (IPA) Electronics Cleaner, 945mL, Bottle	MC002975