



Isopropyl Alcohol, 70% Industrial Grade

1 Scope

Note: Nothing in this standard supersedes applicable laws and regulations.

Note: The words **must**, **shall** or **will** as used in this document, are a mandatory requirement.

1.1 Material Description. A ready-to-use mixture of 30% potable water and 70% isopropyl alcohol (IPA).

1.2 Symbols. Not applicable.

1.3 Applicability. A cleaner for removing surface contaminants.

1.3.1 Isopropyl alcohol is a cleaner and not an adhesion promoter of anaerobic or formed-in-place sealant.

1.3.2 Use of IPA is a remedial solution for temporarily removing contamination from surfaces.

1.3.3 Application Methods of IPA. The product described in this document is applied directly (not by spray, but tapered nozzle tip) to a lint free cloth for manual wiping of machined surfaces intended for application of silicone sealant or anaerobic.

1.3.3.1 Alternative Method of Delivery. Automated using a rotating saturated pad delivery system for high volume annual production volume (APV) of one (1) million or more, on large flat two dimensional (2D) surfaces. The component surface to be cleaned is lifted to the pad, the pad moves through its programmed sequence and the cradled component returns to the non-synchronous conveyor. After a determined number of uses the pad (on a rotating drum) is cycled to a clean surface. The liquid is delivered from a supply/storage tank as part of the system. Exposure to IPA is limited (tank storage) and pad cleanliness is controlled.

1.4 Remarks.

1.4.1 Table 1 describes the ready-to-use liquid properties as received. The specific gravity and concentration selected tests and equipment permit verification by qualified in-plant chemical management personnel.

1.4.2 This product must be used in a well ventilated area following the proper handling and use regulatory and manufacturer's requirements.

1.4.3 Further dilution with potable water is not required as it will reduce cleaning effectiveness.

1.4.4 The benefits of cleaning are significantly reduced the longer the time between cleaning to full joint assembly.

1.4.5 Application Temperature and Drying Time. Unless otherwise specified by the product manufacturer, apply this product on the intended surface whose temperature is from 20 °C to 38 °C. This temperature range is relevant to the applied sealant adhesion rather than the IPA solution evaporation rate especially if the wiping occurs just before sealant application. Contamination removal is less effective when temperature is less than 20 °C and drying rate slows. Drying time under recommended conditions is 15 seconds to 30 seconds with no air flow and roughly 10 seconds with 30 cm² per minute (1 ft² per minute) air flow. It is the responsibility of the applicator and the product manufacturer to establish the accepted conditions, e.g., process time from cleaning to the gasket application and full assembly.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D93	ASTM D1218	ASTM D1505	EPA Method 24
ASTM D297	ASTM D1364	ASTM E70	ISO/IEC 17025

2.2 GM Standards/Specifications.

GMW3059

GMW14270

2.3 Additional References.

- American Association for Laboratory Accreditation (A2LA), 5202 Presidents Court Suite 220, Frederick, Maryland 21703, Phone: (301) 644-3248.
- Deutsche Akkreditierungsstelle (DAkkS) Gesellschaft mit beschränkter Haftung (GmbH), Bundesallee 100 38116 Braunschweig Germany, (www.dakks.de).
- National Institute of Standards and Technology (NIST), 100 Bureau Drive, Stop 1070, Gaithersburg, Maryland 20899-1070 (www.nist.gov).

3 Requirements

3.1 All materials supplied to this standard must comply with GMW3059, **Restricted and Reportable Substances**, including the requirement to submit a full material composition disclosure to GM via the International Material Data System (IMDS) or via a completed GMW3059 report form.

3.2 Table 1 property ranges, except as noted, are determined by measurements at the minimum and maximum concentration limit stated in Table 1 (see 3.4).

Table 1: Initial Qualification Requirements

Properties of Liquid (As Received)	Test Method	Values
Color	Visual	Clear (water white) solution
Potential of Hydrogen (pH) (Hydrogen Ion (H ⁺)), (See 3.3)	ASTM E70	6.5 pH to 8.0 pH
Isopropanol (see 3.4) Product Number: (CAS 67-63-0) Concentration 60%v to 80%v (percent by volume (%v))	ASTM D1505 Hydrometer or ASTM D1218 Refractive Index	0.70%v to 1.05%v 1.3740%v to 1.5000%v
Water (see 3.4) Product Number: (CAS 7732-18-5) Concentration (%v)	ASTM D1364	20%v to 40%v
Flash Point at 70%v IPA to 30%v water solution (see 3.5)	ASTM D93	13.0 °C minimum
Specific Gravity ; at 20 °C Pycnometer Density ; at 25 °C (see 3.6)	ASTM D1505 Hydrometer or ASTM D297 Pycnometer Method	0.750 to 0.900 0.730 to 0.900 g/cm ³
Toxicity/Health and Safety	GMW3059	Compliance
Volatile Organic Compounds (VOC) (weight percent) at 70%v IPA to 30%v water solution (see 3.7)	EPA Method 24	70.0% maximum

3.3 Hydrogen Ion (H⁺) Concentration; Potential of Hydrogen (pH). See Table 1. Use a digital meter or meter with electrode recommended for alcohol measurement. Do not use pH test papers with color indicators for measurement. Use buffer solutions or follow the meter calibration to maintain accurate measurement.

3.4 Percent Volume IPA. The hydrometer and refractive index limits are based on measurements at 60 volume/40 volume and 80 volume/20 volume solutions of IPA to water adjusted to 20 °C. Use a calibrated (certified) isopropyl alcohol hydrometer to measure percent by volume of isopropyl alcohol. The size cylinder needed for measurement depends on the size of the hydrometer. The jar should be at least 25 mm taller than