



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

AMS 3006B

Superseding AMS 3006A

Issued 11-1-48

Revised 11-1-67

ALCOHOL-WATER MIXTURES

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for injection in aircraft power plants where freezing point lower than that of water is required.
3. **TECHNICAL REQUIREMENTS:**
 - 3.1 **Product:** Mixtures shall be composed of materials conforming to 3.1.1, 3.1.2, and 3.1.3 below, as applicable, and shall conform to the following requirements:

Mixture Type	Composition, Parts by Volume, before mixing (See Note 1)	Specific Gravity at 15/4 C (59/39.2 F)	Initial Freezing Point deg, max (See Note 2)
1	Methyl Alcohol 48 - 52 Water 48 - 52	0.9255 - 0.9340	-42.8 C (-45 F)
2	Methyl Alcohol 24 - 26 Ethyl Alcohol 24 - 26 Water 48 - 52	0.9255 - 0.9380	-35.6 C (-32 F)
3	Methyl Alcohol 38 - 42 Water 58 - 62	0.9425 - 0.9500	-30.0 C (-22 F)
4	Methyl Alcohol 58 - 62 Water 38 - 42	0.9050 - 0.9150	-53.9 C (-65 F)

Note 1. **Procedure for Mixing Alcohol and Water:** Water and alcohol shall both be at a temperature within the range of 10 - 32.2 C (50 - 90 F) and within 5 C (9 F) of each other before mixing.

Note 2. **Procedure for Determining Freezing Points:**

- (a) Place 50 - 75 ml of the alcohol-water mixture to be tested in a 1 x 8 in. test tube and close with a 2-hole rubber stopper. Insert an ASTM low cloud and pour point thermometer (ASTM E1) through one hole of the stopper so that the bulb is at approximately the mid-depth of the liquid. Insert through the second hole a 1/8 in. diameter wire agitator having two horizontal loops about 2 in. apart and surrounding the thermometer. Place a small amount of anhydrous calcium chloride in a second test tube 1-1/2 x 8 inches. Stopper this test tube with a stopper having a hole large enough to receive the test tube containing the mixture. Place the first tube within the second so that an air jacket is formed.
- (b) Prepare a bath of acetone and dry ice. The bath shall be insulated and shall be agitated by a motor driven stirrer. Adjust the temperature of the bath to approximately 11 C deg (20 F deg) below the anticipated freezing point of the alcohol-water mixture.