

# CERTIFICATE OF ANALYSIS

<b>Product Name:</b>	Methylsulfonylmethane (MSM)	<b>COA No.:</b>	20103101
<b>Grade:</b>	Pharmaceutical Grade, 20-40 MESH, Fine	<b>Batch Size:</b>	1,000KG
<b>Batch No.:</b>	20201024	<b>Date of Manufacture:</b>	2020.10.24
<b>Package:</b>	25KG NET Food Grade Cardboard Drums	<b>Expiration Date:</b>	2024.10.23
<b>Standard(s):</b>	Q/ANP01-2003, ISO9001:2015	<b>Drum Quantity:</b>	40 DRUMS


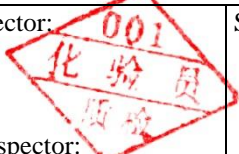


## PRODUCT PHYSICAL PROPERTIES

CAS Number	67-71-0	Index of Refraction (20°C)	1.4226
Chemical Formula	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub> S	Solubility Parameter	14.5
Molecular Weight (g/mol)	94.13	Standard Heat of Formation	-108.3 kcal/mol
Boiling Point @ 760mm Hg	238°C (460 °F)	Heat of Sublimation (25°C) @ 760mm Hg	18.4 kcal/mol
Melting Point @ 760mm Hg	109 °C (228 °F)	Heat of Combustion (25°C), constant volume	-428.29 kcal/mol
Flash Point @ 760mm Hg	143°C (290°F)	Specific Heat (121°C), liquid	0.53 cal/gm°C
Density (26°C) (g/cm <sup>3</sup> )	1.450-1.455 g/cm <sup>3</sup>	Dipole Movement (20°C)	4.25 Debye

## PRODUCT ANALYSIS REPORT

INSPECTION ITEMS	PRODUCT INDEX	INSPECTION RESULT	TEST METHOD
Purity (%)	≥99.90%	99.97%	USP32, PAGE 1053 (GC)
Dimethyl Sulfoxide (%)	≤0.01%	<0.01%	USP42 (GC)
Appearance	White, Crystalline	White, Crystalline	Visual
Odor	Odorless	Odorless	Olfaction
Melting Point @ 760mm Hg (°C)	108.5-110.5 +/- 1°C	108.7°C	BP Appendix V A (Method 1)
Bulk Density (g/ml)	>0.65 g/ml	0.71 g/ml	USP42
Water Content (%)	<0.20%	0.14%	BP Appendix IX C
Total Heavy Metals	<3.0 ppm	<3.0 ppm	USP42
As (ppm)	<0.1 ppm	<0.1 ppm	USP42
Cd (ppm)	<0.1 ppm	<0.1 ppm	USP42
Hg (ppm)	<0.1 ppm	<0.1 ppm	USP42
Pb (ppm)	<0.1 ppm	<0.1 ppm	USP42
Residue on Ignition (%)	<0.10%	0.01%	USP32, Page 2053
Coliform (CFU/g)	Negative	Negative	USP42
E Coli (CFU/g)	Negative	Negative	USP42
Yeast/Mold (CFU/g)	<10	<10	USP42
Salmonella / 25g	Negative	Negative	USP42
Standard Aerobic Plate Count (CFU/g)	<10	<10	USP42
Total Aerobic Bacterial Count (CFU/g)	<1000	<1000	USP42
Particle Size	20-40 MESH	Confirmed	USP42

**Storage** Store in a cool, dry place and keep away from strong light and heat

<p><b>Conclusion of Inspection</b></p> <div style="text-align: center;">  </div>	<p>Inspector: </p> <p>Reinspector: </p>	<p>Stamp Used Only Inspection:</p> <div style="text-align: center;">  </div>
---	---	---