



VYCERIN™ - GLYCERINE						
Tallow Based Glycerine						
Trade Name	Description (INCI Name: Glycerin) CAS Number: 56-81-5	SPECIFICATIONS				
		Glycerin Assay	Specific Gravity	Color, APHA	Fatty Acids and Esters ⁽²⁾	Moisture
		%	@ 25/25 °C	H.U.	mL NaOH	%
VYCERIN™ GL88 ^{(1) (6)}	Glycerine, 99.5% USP	≥ 99.5	1.2608 - 1.2620	≤ 10.0	≤ 1.0	≤ 0.5
VYCERIN™ GL80 ⁽³⁾	Glycerine, 99.5%	≥ 99.5	≥ 1.2608	≤ 20	≤ 1.0	≤ 0.5
VYCERIN™ GL89 ⁽⁴⁾	Antifreeze Grade Glycerine, 99.5% - ASTM D7640	≥ 99.5	≥ 1.261	≤ 10	≤ 1.0	≤ 0.5
VYCERIN™ GL90 ⁽³⁾	Glycerine, 99.7%	≥ 99.7	1.2612 - 1.2620	≤ 10	≤ 1.0	≤ 0.3
VYCERIN™ GL99 ^{(1) (6)}	Glycerine, 99.7% USP	≥ 99.7	1.2612 - 1.2620	≤ 10.0	≤ 1.0	≤ 0.3
Vegetable Based Glycerine						
Trade Name	Description (INCI Name: Glycerin) CAS Number: 56-81-5	SPECIFICATIONS				
		Glycerin Assay, anhydrous basis	Specific Gravity	Color, APHA	Fatty Acids and Esters ⁽²⁾	Moisture
		%	@ 25/25 °C	H.U.	mL NaOH	%
VYCERIN™ GL91 ^{(1) (5) (6)}	Glycerine Vegetable, USP	99.0 - 101.0	1.2608 - 1.2620	≤ 10.0	≤ 1.0	≤ 0.5
VYCERIN™ GL92 ⁽³⁾	Glycerine Vegetable, 99.5%	99.0 - 101.0	≥ 1.2608	≤ 10.0	≤ 1.0	≤ 0.5
VYCERIN™ GL93 ^{(1) (5) (6)}	Glycerine Kosher, USP	99.0 - 101.0	≥ 1.2612	≤ 10.0	≤ 1.0	≤ 0.3
VYCERIN™ GL97 ⁽⁴⁾	Antifreeze Grade Glycerine Vegetable, 99.5% - ASTM D7640	≥ 99.5	≥ 1.261	≤ 10	≤ 1.0	≤ 0.5

⁽¹⁾ Vantage Oleochemicals certifies that the current USP requirements are met for VYCERIN™ GL88, GL99, GL91, GL93 : Residue on Ignition ≤ 0.01%; Chlorides (as Cl) ≤ 10 ppm; Chlorinated Compounds (as Cl) ≤ 30 ppm; Sulfates (as H2SO4) ≤ 20 ppm Pass Identification Tests (IR Scan, Chromatographic Retention Time); Diethylene Glycol, Ethylene Glycol and other impurities; Residual Solvents. Note 6 regarding Elemental Impurities information.

⁽²⁾ ml 0.5N NaOH required to neutralize 50 grams of glycerin.

⁽³⁾ Minor component analysis is also carried out on this grade of glycerin.

⁽⁴⁾ Vantage Oleochemicals certifies that the current ASTM D7640 requirements are met for VYCERIN™ GL89 and VYCERIN™ GL97: Methanol ≤ 10 ppm; Ash ≤ 0.01%; Iron ≤ 2 ppm; Chloride ion ≤ 10 ppm; Sulfate ion ≤ 10 ppm; Silicon ≤ 10 ppm; Boron ≤ 10 ppm; Total Nitrite, Nitrate and Phosphate ≤ 10 ppm; Total Aluminum, Calcium, Copper, Iron, Magnesium, Lead and Zinc ≤ 5 ppm.

⁽⁵⁾ Vantage Oleochemicals certifies that VYCERIN™ GL91 and VYCERIN™ GL93 meet the current specifications requirements for Food Chemical Codex, European Pharmacopoeia and Japanese Pharmacopoeia.

⁽⁶⁾ As of January 1, 2018, the USP glycerin monograph no longer includes a heavy metals test against a specification of less than 5 ppm as lead. Instead the requirement, in General Chapters <233> and <233>, is for elemental impurities testing under 4 different classification groups depending on the end use of the glycerine and the metals which may be present. The onus for this testing now falls on the glycerine end user.

To ensure continued product quality and provide our excipient customers with current information on the level of elemental impurities in our USP glycerin products, Vantage Oleochemicals has tested representative glycerin samples for the 24 elemental impurities since 2016. On an ongoing basis, the Class 1 and 2A elements are tested on representative samples. Detailed elemental impurities information for each of our USP glycerin products is available upon request.