Technical Data Sheet

Propylene Glycol USP Grade

for Cosmetics and Personal Care

< Updated in Mar. 29, 2016 >

Description

SKC Propylene Glycol USP Grade (PG USP) for Cosmetics and Personal Care is a material produced by hydrolysis of Propylene Oxide (PO) with purified water at the high temperature and pressure. SKC PG USP is a high purity product of more than 99.80% purity.

PG USP is a clear, relatively nontoxic, hygroscopic liquid with low vapor pressure. It is practically colorless, odorless, and water soluble material with extensive applications in the fragrance, cosmetics and personal care products

SKC's PG USP is produced in compliance with the United States Pharmacopeia (USP), meets the requirements of other Standards like the European Pharmacopeia (EP). Also PG USP for cosmetics and personal cares is designated as safe product by the Cosmetic Ingredient Review (CIR) and International Fragrance Association (IFRA)

Sales Specifications

Property	Specifications	Test Method
IDENTIFICATION, by IR, GC, A, B, C	Pass	USP
ASSAY, MPG, wt. %	Min. 99.80	USP
EG, wt.ppm	Max. 50	USP
DEG, wt.ppm	Max. 50	USP
TESTS		
Residue on Ignition, mg (wt. ppm)	Max. 1 (Max. 20)	USP
Chlorides, wt.ppm	Max. 1.0	USP
Sulfate , wt.ppm	Max. 10	USP
Heavy metal (as Pb), wt. ppm	Max. 1.0	USP
SPECIFIC TESTS		
Specific Gravity, 25/25℃	1.035 – 1.037	USP
Acidity, ml, 0.1N NaOH (ppm as Acetic Acid)	Max. 0.05 (Max. 30)	USP
Water, wt. ppm	Max. 700	USP
Iron , wt.ppm	Max. 0.10	ASTM E 394
Color , APHA	Max. 10	ASTM D 1209
Distillation Range (1atm), ℃ IBP/DP	186 – 189	ASTM D 1078

Applications

PG USP for cosmetic and personal care is used solvent, carrier, emollient, dispersant, coupling agent and co-emulsifier, emulsion stabilizer or viscosity modifier. Also it is used as a humectant due to their hygroscopic nature and ability to attract and hold water, and as a preservative due to inherent antimicrobial activity against a wide range of bacterial and fungal species.

PG USP is commonly used in many types of cosmetics and personal care formulations.

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1. Cosmetics : blushes, lipsticks eyeliners and eye shadows
2. Personal care : bath and shower soaps, gels, face cleanser, antiperspirant deodorant, roll-ons and sticks
3. Skin-care : creams, lotions and oils
4. Oral-care : mouthwashes, toothpastes
5. Shaving products : creams, foams, gels, aftershave lotions
6. Hair-care : Shampoos, conditioners, styling/coloring items
7. Fragrances : perfumes and colognes
8. First aid : cleansers and disinfectants
9. Baby care : wet wipes and antiseptics

Physical Properties

Items	Properties
IUPAC Name	1,2-Propanediol
Formula	CH_3-CH(OH)-CH_2OH ; $C_3H_8O_2$
Molecular Weight(g/mol)	76.10
CAS Number	57-55-6
EINECS Number	200-338-0
Boiling Point, 101.3 kPa (1atm)	187℃(369°F)
Distillation Range , 101.3 kPa (1atm)	186 - 189℃(367-372°F)
Vapor Pressure, 20℃(68°F) 25℃(77°F)	0.011 kPa (0.08 mmHg) 0.017 kPa (0.13 mmHg)
Freezing Point	<-59℃ (<-74.2°F)
Pour Point	< -57℃(-71°F)
Specific Gravity, 20/20℃(68/68°F) 25/4℃(77/39°F) 60/4℃(140/39°F)	1.038 1.033 1.007
Refractive Index n20/D, 20℃(68°F)	1.4310 - 1.4330
Viscosity, 25℃ (77°F) 60℃(140°F)	48.6 cPs (mPa.s) 8.4 cPs (mPa.s)
Specific Heat, 25℃(77°F)	2.51 J/g^{o}K(0.60 Btu/lb/°F)
Surface Tension, 25℃(77°F)	36 mN/m(36 dynes/cm)
Flash Point	104℃(220°F)
Autoignition Temperature	371℃(700°F)
Thermal Conductivity, 25℃(77°F)	0.2061 W/m^{o}K(0.1191 Btu/hr ft°F)
Electrical Conductivity, 25℃(77°F)	10 micro S/m
Heat of Formation	-422 KJ/mol (-101 Kcal/g-mol)
Heat of Vaporization, 25℃(77°F)	67.0 kJ/mol(379 Btu/lb/°F)

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Material Safety Policy

Before handling the product, The Material Safety Data Sheet (MSDS) should always be read and understood thoroughly and adequate safety procedures should be followed. MSDS offers information on the toxicity, environmental and industrial hygiene aspect of our products

Handling and Storage

PG USP is high-purity material, which must be handled with special precautions to avoid contamination with a container tightly closed and to avoid exposure to UV light, air, heat. Under ordinary conditions, mild steel is a satisfactory material of construction; however for long term storage and where iron contamination and color are objectionable, stainless steel or aluminum vessels are recommended. Store under 40 ℃ with N_2 blanketing for the inhibition of oxidization.

Container Material Selection

Stainless Steel, aluminum, plastic or carbon steel with phenolic coating are recommended.

Shipping

Product is available in barges, lined tank cars and dedicated tank truck, and 215kg nonreturnable drums.
DOT Label required: None
Freight classification: Propylene Glycol

Additional information is available from your SKC representative, our web site or calling :

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