Technical Data Sheet

Propylene Glycol USP Grade

for Food

< Updated in Mar. 29, 2016 >

Description

SKC Propylene Glycol USP Grade (PG USP) for Food 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. It is used as an additive and solvent in food.

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), the Food Chemicals Codex (FCC), the Chinese Food and Drug Administration (CFDA). Also PG USP is manufactured at the plant HACCP is certified and has a Kosher and HALAL Certificate.

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 is used as a food additive in a wide variety of food processing application.

Direct food application

1. Solvent and carrier flavor or color in the food and beverage manufacturing processes, to make drinks, biscuits, cakes, sweets.

2. Plasticizer and softening agent for food-contact items such as cork seals.

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3. Flavor extraction solvent and processing aid in the isolation of natural flavoring materials

4. Thickener, clarifier and stabilizer in food and beverage.

5. Humectants in prepared fruits, vegetables and bakery goods.

Indirect food application

1. PG USP serves as a heat transfer fluid for a food-safe corrosion inhibitor in food and beverage applications. For example, it is used to cool milk, juices and for the freezing of wrapped foods by immersing in propylene glycol baths.

2. Solvent for the printing of food packaging and Plasticizer in cellophane film production.

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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