

Substance Information Document

Propylene glycol

1. Substance identity

Name	Propylene glycol
Synonyms	1,2-Propanediol; Propan-1,2-diol
IUPAC Name	propane-1,2-diol
CAS	57-55-6

2. Toxicological information

Propylene glycol (PG) has a very low systemic acute toxicity following inhalation, dermal or oral exposure. No “significant side effects” were seen in 40 “healthy” regular smokers using an e-cigarette device for 6 months containing about 234 mg PG/cartridge [supplying about 7 mg/kg bw/day].

An inhalation DNEL of 12.15 mg/m³ for consumers of e-cigarettes was reported by the German BfR.

Propylene glycol (PG) is a slight skin and eye irritant. Respiratory tract irritation has been noted in human and laboratory animal studies, and a local effect (nasal bleeding in rats exposed to 160 mg/m³ for 13 weeks by nose-only inhalation) has been also reported, which set the basis for existing concentration of 160 mg/m³ as NOAEC by DECOS. The recent study of the UK Committee on Toxicity of chemicals in food, consumer products and the environment has established a Health Based Guidance Values (HBGV) of 2.9 mg/m³ for the general population continuously exposed to PG by inhalation.

Laboratory animal studies indicated that PG is not a skin sensitizer, although PG might have adjuvant-like effects, increasing the allergenic potential of other agents. Limited data indicated that childhood exposures to low concentrations of PG might be associated with an increased risk of developing asthma and rhinitis.

No evidence of carcinogenicity and genotoxicity were seen in lifetime rodent studies.

JECFA	348. Propylene, 1,2- glycol (WHO Food Additives Series 5) (inchem.org) ALIPHATIC ACYCLIC DIOLS, TRIOLS, AND RELATED SUBSTANCES (JECFA Food Additives Series 48) (inchem.org)
FEMA	3. GRAS Substances(2001-3124)_0.pdf (femaflavor.org)
EFSA	Re-evaluation of propane-1,2-diol (E 1520) as a food additive (wiley.com)
ECHA – REACH dossier	Registration Dossier - ECHA (europa.eu)
PUBCHEM	Propylene glycol C3H8O2 - PubChem (nih.gov)
CIR	Safety Assessment of Propylene Glycol, Tripropylene Glycol, and PPGs as Used in Cosmetics (personalcarecouncil.org)

	Final assessment on PG.pdf (personalcarecouncil.org)
OSHA	-

3. Addictiveness and attractiveness

Due to its humectant properties, PG is used as moistening agent in cigarette. No data have been “reported to suggest that propylene glycol plays a role in smokers’ addictiveness to cigarettes”.

Further studies demonstrated that addition of PG at 2.2% to the tobacco (w/w tobacco) or in combination with glycerol did not influence the level of serum nicotine.

SCENIHR	Addictiveness and Attractiveness of Tobacco Additives (europa.eu)
EMA	Questions and answers on propylene glycol used as an excipient in medicinal products for human use (europa.eu)
PUBMED	Propylene glycol, a major electronic cigarette constituent, attenuates the adverse effects of high-dose nicotine as measured by intracranial self-stimulation in rats - PubMed (nih.gov)