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Technical Information

Butyl Diglycol Acetate

Description

Low-volatility solvent with a mild ester-type odor. Does not contain hydroxyl groups and has good solvent power for numerous resins, dyes, waxes, fats, and oils. The main applications are coatings and printing inks. Butyl Diglycol Acetate can improve the processing characteristics of PVC plastisols.

Chemical nature

Diethylene glycol n-butyl ether acetate, 2-(2-butoxyethoxy)ethyl acetate

Molecular formula	$C_{10}H_{20}O_4$
Molar mass	204.27 g/mol
CAS number	124-17-4
EC number	204-685-9

Specification

Property	Value	Unit	Test method
Butyl Diglycol Acetate	97.0 min.	%	GC
Water	0.1 max.	%	DIN 51777, Part 1
Pt/Co color value (Hazen)	20 max.	-	DIN EN ISO 6271

Properties

Butyl Diglycol Acetate is a clear, high-boiling, low-volatility, slightly hygroscopic liquid with a mild ester-type odor. It is miscible with most common organic solvents, but miscible with water only between certain limits.

Due to its ether and ester functional groups, Butyl Diglycol Acetate undergoes characteristic reactions for this compound class. For instance, Butyl Diglycol Acetate dissolves – particularly at elevated temperatures – numerous natural and synthetic resins, plasticizers, waxes, fats, and oils.

It may react with atmospheric oxygen to form peroxides.

Butyl Diglycol Acetate hydrolyzes slowly in the presence of water but more rapidly in alkaline and acid media.

Physical data

The following physical data have been compiled from the literature as well as from Gamma Chimica measurements and calculations. They do not represent any legally binding guarantee of properties for our sales product.

Property	Condition	Value	Test method
Boiling point	at 1,013 hPa	246 °C	
Density	at 20 °C	0.9765 g/cm^3	DIN 51757
Refractive index n_D^{20}		1.425 – 1.427	
Melting point		-32 °C	-
Evaporation rate	ether = 1	above 4000	DIN 53170
Enthalpy of combustion (ΔH_c)	at 25 °C	27140 kJ/kg	-
Enthalpy of vaporization (ΔH_v)	at 25 °C	376.2 kJ/kg	-
Enthalpy of vaporization (ΔH_v)	at boiling point	270.6 kJ/Kg	
Enthalpy of formation (ΔH_v)	at 25 °C	- 4358 kJ/kg	
Solubility			
– Butyl Diglycol Acetate in Water		approx. 6.4% wt	
– Water in Butyl Diglycol Acetate		approx. 3.5% wt	
Hansen solubility parameters		δ_d = 16.0 (MPa)$^{1/2}$ δ_p = 4.1 (MPa)$^{1/2}$ δ_h = 8.2 (MPa)$^{1/2}$ δ_t = 18.44 (MPa)$^{1/2}$	

Conversion factor: 1 (cal/cm^3)$^{1/2}$ = 2,0455 (MPa)$^{1/2}$

T [°C]	Vapor pressure P [hPa]	Density ρ [g/cm³]	Viscosity η [mPa·s]	Specific heat Cp [kJ/(kg·K)]
- 20	0.000034	1.0158	16.59	
- 10	0.00017	1.0059	9.93	
0	0.0007	0.9961	6.53	
10	0.0025	0.9870	4.61	
20	0.008	0.9765	3.44	2.044
40	0.06	0.9578	2.15	2.081
50	0.14	0.9493	1.77	2.106
60	0.31	0.9392	1.49	2.133
80	1.29	0.9219	1.11	2.187
100	4.36	0.9023	0.86	2.230
120	12.5	0.8841	0.69	
140	31.6	0.8647	0.56	
160	71.7	0.8456	0.47	
180	148.4			
200	285			
220	513			
240	873			
245.9	1013			

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Applications

Butyl Diglycol Acetate serves as a high-boiling solvent, levelling and coalescent agent in paints and lacquers (including emulsion paints and textured finishes) and printing inks (primarily screen printing inks).

Even in low concentrations, it can improve the flow out of many finishes.

Other applications:

- dyes in wood stains and furniture polishes
- ballpoint pastes
- component in cleaners.

Small amounts of 1 – 2% generally can lower the initial viscosity of PVC plastisols to facilitate processing. Similar quantities can be used to retard the thickening of PVC pastes during storage.

Storage & Handling

Butyl Diglycol Acetate should be stored under nitrogen and moisture free. The storage temperature must not exceed 40 °C. Under these conditions, a storage stability of 12 months can be expected.

Safety

The information and advice given in our Safety Data Sheet should be observed. Due attention should also be given to the precautions necessary for handling chemicals.

Note

The data contained in this Technical Information is based on our current knowledge and experience as well as our investigations according to the today's state-of-the-art. In view of the many factors that may affect processing and application of the product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for specific purpose. No liability of Gamma Chimica can be derived therefrom. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.

October 2021

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