



Dow Oxygenated Solvents

Product Overview and Selection Guide





Dow Oxygenated Solvents offer a range of solvency, water solubilities and volatilities that present a wide variety of formulating opportunities for the producers of household and industrial/institutional cleaners.

Looking Beyond Today

You need oxygenated solvents. Your applications depend on them. So you need a supplier who can deliver not only what you need today, but what you'll need for your future growth. That supplier is Dow.

We've been providing solvents for customers for more than 100 years – but we're not resting on our accomplishments. We're continuing to innovate to help customers like you develop differentiated products, stay ahead of changing environmental regulations, maintain low cost to serve and compete in a fast-changing business environment.

Dow's solvents portfolio include a wide selection of alcohols, including, esters, ketones and ethylene- and propylene-based glycol ethers.

Front cover: Dow Oxygenated Solvents are ideal solvents for the coating applications and can be used in a wide range of other applications such as photoresist formulations, photoresist stripping for precision etching, edge bead removal and cleaning.



The utilization of a solvent system with the proper balance of solvency, volatility and surface tension properties can significantly improve the application and performance characteristics of coatings.

Alcohols

Dow's alcohols range from three to twelve carbon atoms, from propanol to 2,6,8-trimethyl-4-nonanol. A single hydroxyl group characterizes them, and performance is largely controlled by the related hydrocarbon structure.

The low-molecular weight, water-soluble products are solvents for the manufacture of protective coatings, dyes and inks. These alcohols are also used in producing plastics, flavorings, perfumes, cosmetics, pharmaceuticals, cleaners and polishes.

The higher molecular weight alcohols are only slightly soluble in water and are used as latent solvents for solvent-based coatings and as coupling agents in waterborne coatings. They help provide the proper balance of desired properties in a formulation, such as viscosity, flow and leveling, and cure rate. The higher molecular weight alcohols are also intermediates for plasticizers, surfactants, lubricants, ore collectors, pesticides and pharmaceuticals.

Esters

Our acetate esters have good solvency power for many natural and synthetic resins (e.g., nitrocellulose) and are commonly used in lacquer thinners, wood lacquers and a wide variety of coatings. Isopropyl and butyl acetate are well established as volatile solvents for the manufacture and application of many types of finishes.

Less volatile esters are used as tail solvents for organic coatings and as coalescing aids for latex paints. All the acetate esters are miscible with many common organic solvents. They are used broadly in printing inks, aerosol sprays and personal care products, as solvents for fragrances, cosmetics and personal care, and as a processing solvent in the pharmaceutical industry.

Dow's line of esters, including UCAR™ n-Alkyl propionates and UCAR Ester EEP, offers substantial flexibility in formulating coatings. Their linear structures contribute to effective viscosity reduction and to improved solvent diffusion from coating films. They have strong solvency and proper volatility for high solids coatings and printing ink applications. Odor characteristics are significantly more favorable than with other solvents of similar volatility. Their high electrical resistivity properties provide advantages in formulating high solids coatings for electrostatic spray applications.

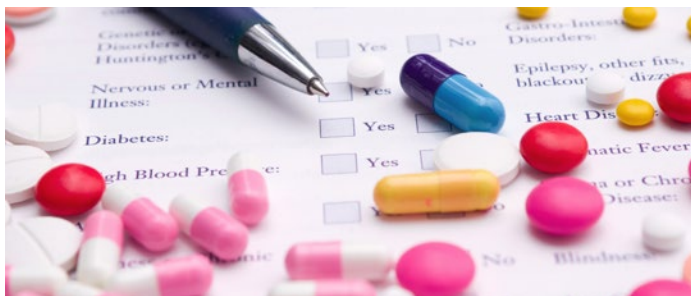
Propionate esters provide excellent replacement options for oxo-hexyl acetate, methyl n-amyl ketone, and xylene. They are commonly used in automotive refinishes, OEM coatings, appliance coatings, cleaning fluids and printing inks, as solvents for cosmetics/personal care products and fragrances, and as a polymerization solvent for high solids acrylics resins.

UCAR Ester EEP and the propionate esters also find use as solvents for the electronics industry.

Solvents: Selection Guide for Coatings

		Waterborne Coatings	High-Solids Coatings
Alcohols	n-Butanol	•	•
	2-Ethylhexanol	•	
	Isobutanol	•	•
	Isopropanol	•	•
	n-Pentanol	•	•
	n-Propanol	•	•
	2-Methyl Butanol	•	•
	Diisobutyl Carbinol	•	•
Esters	n-Butyl Acetate		•
	DOWANOL™ PGDA		•
	Primary Amyl Acetate		•
	Isobutyl Acetate		•
	Isopropyl Acetate		•
	n-Propyl Acetate		•
	UCAR™ Ester EEP	•	•
	UCAR™ Filmer IBT	•	
	UCAR™ n-Butyl Propionate		•
	UCAR™ n-Pentyl Propionate		•
UCAR™ n-Propyl Propionate		•	
Ketones	Isophorone		•
	Isobutyl Heptyl Ketone	•	•
	Diisobutyl Ketone		•
	Methyl Isobutyl Ketone		•
Glycol Ethers	PROGLYDE™ DMM Glycol Ether	•	•
	Glycol Ether Solvents	•	•
	Glycol Ether Acetates		•

NOTE: Consult the appropriate Material Safety Data Sheet for safety and handling guidelines.



Oxo Acids and Ketones are used as processing solvents in the manufacture of pharmaceuticals.

Oxo Acids

Dow offers a broad range of Oxo Acids. Oxo Acids are used in a wide variety of applications such as stabilizers, plasticizers, coatings additives, lubricants, pharmaceuticals, pesticides, perfumes, food additives, preservatives and chemical intermediates.

Alcohols, Esters, Ketones, Oxo Acids Selection Chart

	Product	Structural Formula	Molecular Weight, g/mol	Boiling Point °C at 760mm Hg	Flash Point °F / °C	Evaporation Rate nBuAc=1	Specific Gravity at 20/20°C
Alcohols	Primary Amyl Alcohol Mixed Isomers	$C_5H_{11}OH$ (mixed isomers)	88.15	133.2	113/45	0.30 ^a	0.815
	n-Butanol	C_4H_9OH	74.12	117.7	97/36	0.44	0.810
	Diisobutyl Carbinol	$[(CH_3)_2CHCH_2]_2CHOH$	144.26	178.0	149/65	0.06	0.811
	2-Ethylhexanol	$CH_3(CH_2)_3CH(C_2H_5)CH_2OH$	130.23	184.6	162/72	0.02	0.833
	Isobutanol	$(CH_3)_2CHCH_2OH$	74.12	107.9	82/28	0.63	0.802
	Isopropanol	$(CH_3)_2CHOH$	60.10	82.3	53/12	1.11	0.787
	Methyl Isobutyl Carbinol	$(CH_3)_2CHCH_2CH(OH)CH_3$	102.18	131.7	105/41	0.27	0.807
	2-Methyl Butanol	$C_2H_5CH(CH_3)CH_2OH$	88.15	128.7	113/45	0.50	0.818
	n-Pentanol	$C_5H_{11}OH$	88.15	137.9	119/48	0.30	0.816
n-Propanol	C_3H_7OH	60.10	97.2	73/23	0.87	0.816	
Esters	Primary Amyl Acetate Mixed Isomers	$C_5H_{11}OC(O)CH_3$ (mixed isomers)	130.19	146.0	77/25 ^b	0.39 ^b	0.876
	n-Butyl Acetate	$C_4H_9OC(O)CH_3$	116.16	126.2	72/22	1.00	0.883
	Isobutyl Acetate	$(CH_3)_2CHCH_2OC(O)CH_3$	116.16	118.0	64/18	1.52	0.873
	Isopropyl Acetate	$(CH_3)_2CHOC(O)CH_3$	102.13	88.5	36/2	3.5	0.869
	n-Propyl Acetate	$C_3H_7OC(O)CH_3$	102.13	101.5	58/14	2.13	0.883
	UCAR™ n-Butyl Propionate	$C_4H_9OC(O)CH_2CH_3$	130.19	144.7	100/38	0.45	0.876
	UCAR™ Ester EEP	$C_2H_5OC_2H_4C(O)OCH_2CH_3$	146.19	169.7	138/60	0.12	0.951
	UCAR™ Filmer IBT	$(CH_3)_2CHCH(OH)C(CH_3)_2CH_2OC(O)CH(CH_3)_2$	216	255.0	246/120	<0.01	0.948
	UCAR™ n-Pentyl Propionate	$C_5H_{11}OC(O)CH_2CH_3$	144.22	165.0	135/57	0.18	0.874
UCAR™ n-Propyl Propionate	$C_3H_7OC(O)CH_2CH_3$	116.16	122.4	75/24	1.21	0.881	
Ketones	Diisobutyl Ketone	$(CH_3)_2CHCH_2C(O)CH_2CH(CH_3)_2$	142.24	169.4	120/49	0.19	0.807
	Isobutyl Heptyl Ketone	$(CH_3)_2CHCH_2C(O)CH_2CH(CH_3)CH_2CH(CH_3)_2$	184.32	217.2	170/77	<0.01	0.820
	Isophorone	$C(O)CH_2(CH_2)_2CH_2C(CH_3)CH$	138.21	215.2	183/84	0.02	0.923
	Methyl Isobutyl Ketone	$CH_3C(O)CH_2CH(CH_3)_2$	100.16	116.1	64/18	1.66	0.802
	Acetone	$(CH_3)_2CO$	58.08	56.3	-4/-20	6.3	0.792
Oxo Acids	Propionic Acid	CH_3CH_2COOH	74.08	140.8	125/52	0.24	0.995
	Valeric Acid	$CH_3(CH_2)_3COOH$	102.13	185.5	183/84	0.02	0.939
	Isopentanoic Acid	C_4H_9COOH (mixed isomers)	102.13	183.1	171/77	0.04	0.937
	2-Ethylhexoic Acid	$CH_3(CH_2)_3CH(C_2H_5)COOH$	144.21	227.8	256/124	<0.01	0.908

a Based on n-amyl alcohol
b Based on n-amyl acetate

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III Section 313: No, except for isophorone and methyl isobutyl ketone
Hazardous Air Pollutants listed under Title III of the Clean Air Act: No, except for isophorone and methyl isobutyl ketone
These properties are typical of the product, but should not be confused with, or regarded as, sales specifications.

Ketones

Ketones are an important class of industrial chemicals that are widely used as solvents and as chemical intermediates. They are known for being strong, versatile organic solvents and therefore are essential components of many consumer and commercial products. Ketones are used safely and effectively in everyday products such as paints, adhesives, printing inks and cleaners. They are used extensively in the coatings industry as solvents for nitrocellulose and other cellulose esters and for

vinyl chloride-vinyl acetate and other resins. They are used as active solvents or diluents, often in combination with other solvents. Their low densities, combined with strong solvency, make them desirable solvents for meeting Volatile Organic Compound regulations. Ketones are also used extensively in the manufacture of commercial products such as pharmaceuticals, plastics, fibers and films.

Density lb/gal at 20°C	Viscosity cP at 20°C	Vapor Pressure, mm Hg at 20°C	CAS Number	Surface Tension, dynes/cm at 20°C	Hansen Solubility Parameters (joules/cm ³) ^{1/2}				Solubility wt% at 20°C	
					Dispersion	Polar	H Bonding	Total	In Water	Water In
6.79	4.3	2.2	137-32-6 / 71-41-0	23.7	15.9	4.5 ^a	13.9 ^a	21.7 ^a	1.7	9.2
6.75	3.0	4.9	71-36-3	24.8	16.0	5.7	15.8	23.1	7.7	20.1
6.75	15.4	0.2	108-82-7	26.0	14.9	3.1	10.8	18.1	0.06	1.0
6.94	10.3	0.09	104-76-7	26.9	15.9	3.3	11.8	20.2	0.07	2.6
6.68	4.0	8.1	78-83-1	23.0	15.1	5.7	15.9	22.7	8.5	15
6.55	2.4	31.0	67-63-0	21.4	15.8	6.1	16.4	23.5	∞	∞
6.72	5.2	3.8	108-11-2	23.0	15.4	3.3	12.3	19.9	1.7	6.2
6.82	5.0	3.8	137-32-6	25.7	16.0	5.1	14.3	21.1	2.2	8.3
6.79	4.0	1.4	71-41-0	25.7	15.9	4.5	13.9	21.7	2	9.5
6.71	2.2	15.2	71-23-8	23.8	16.0	6.8	17.4	24.5	∞	∞
7.29	0.9	4	628-63-7 / 624-41-9	25.8	15.8 ^b	3.3 ^b	6.1 ^b	17.1 ^b	0.2	0.9
7.35	0.7	8.5	123-86-4	25.3	15.8	3.7	6.3	17.4	0.7	1.9
7.26	0.7	13.6	110-19-0	23.4	15.1	3.7	6.3	16.8	0.66	1.1
7.28	0.5	45.7	108-21-4	22.3	14.9	4.5	8.2	17.6	3	1.9
7.39	0.6	25	109-60-4	24.4	15.3	4.3	7.6	18.0	2	2.6
7.30	0.8	3.4	590-01-2	25.3	15.6	5.4	5.3	18.0	0.2	<0.02
7.91	1.3	0.9	763-69-9	28.1	16.2	3.3	8.8	18.6	5.2	2.2
7.89	17.9	<0.01	25265-77-4	30.7	15.1	6.1	9.8	16.8	0.12	2.9
7.28	1.0	1.5	624-54-4	26.4	15.6	5.1	5.1	17.1	<0.05	<0.03
7.34	0.7	10.7	106-36-5	24.7	15.7	5.8	5.7	17.5	0.5	
6.73	1.0	1.2	108-83-8	24.1	16.0	3.7	4.1	16.9	0.04	0.5
6.83	1.4	0.05	123-18-2	26.8	15.2	4.9	5.0	16.4	0.002	0.3
7.69	2.6	0.1	78-59-1	31.6	16.6	8.2	7.4	19.9	1.46	4.2
6.67	0.6	15.3	108-10-1	24.0	15.3	6.1	4.1	17.0	1.8	1.9
6.59	0.36	2	67-64-1	23.1	7.6	5.1	3.4	9.8	∞	∞
8.3	1.1	2.4	79-09-4	26.2	14.7	5.3	12.4	18.9	∞	∞
7.84	2.2	<0.1	109-52-4	26.1	15.0	4.1	10.3	18.7	2.4	13
7.82	2.1	0.1	109-52-4 / 116-53-0	25.5	16.4	4.1	10.7	20.0	3.2	
7.58	7.7	<0.01	149-57-5	28.3	15.9	4.4	9.1	18.8	0.1	1.4

Glycol Ethers

Dow's glycol ethers portfolio is offered in two product families: E-series ethylene-based, and P-Series propylene-based glycol ethers.

Glycol ethers are excellent solvents for many types of applications. The combination of an alcohol and an ether functional group in the same molecule provides unique solvency characteristics with both polar and non-polar properties. This surfactant-like structure gives glycol ethers the ability to couple unlike liquid phases and be miscible in a broad range of hydrophilic and hydrophobic solvents.

From electronics to coatings and cleaners, glycol ethers offer a wide range of properties to meet the ever-changing needs of the marketplace. Glycol ethers are used in many applications because of their ability to lower surface tension in aqueous systems, as well as to penetrate and soften soils.

In cleaning formulations, they are widely used to aid the removal of greasy soils, to aid in solubilizing other components in the cleaner formulation, and to improve the storage stability of the formulations. In high solids solvent-borne coatings, high

Glycol Ethers Selection Chart

	Product	Chemical Nomenclature	Structural Formula	Molecular Weight, g/mol	Boiling Point °C at 760mm Hg	Flash Point °F / °C
P-Series Glycol Ethers	DOWANOL™ PM Glycol Ether	Propylene Glycol Methyl Ether	$\text{CH}_3\text{OCH}_2\text{CHOHCH}_3$	90.1	120	88/31 ¹
	DOWANOL™ DPM Glycol Ether	Dipropylene Glycol Methyl Ether	$\text{CH}_3\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{H}$	148.2	190	167/75 ¹
	DOWANOL™ TPM Glycol Ether	Tripropylene Glycol Methyl Ether	$\text{CH}_3\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_3\text{H}$	206.3	243	250/121 ²
	DOWANOL™ PMA Glycol Ether	Propylene Glycol Methyl Ether Acetate	$\text{CH}_3\text{OCH}_2\text{CH}(\text{CH}_3)\text{OOCCH}_3$	132.2	146	108/42 ²
	DOWANOL™ DPMA ³ Glycol Ether	Dipropylene Glycol Methyl Ether Acetate	$\text{CH}_3\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{OCCH}_3$	190.2	209	187/86 ²
	DOWANOL™ PnP Glycol Ether	Propylene Glycol n-Propyl Ether	$\text{C}_3\text{H}_7\text{OCH}_2\text{CHOHCH}_3$	118.2	149	118/48 ¹
	DOWANOL™ DPnP Glycol Ether	Dipropylene Glycol n-Propyl Ether	$\text{C}_3\text{H}_7\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{H}$	176.2	213	190/88 ¹
	DOWANOL™ PnB Glycol Ether	Propylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{OCH}_2\text{CHOHCH}_3$	132.2	171	145/63 ¹
	DOWANOL™ DPnB Glycol Ether	Dipropylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{H}$	190.3	230	212/100 ¹
	DOWANOL™ TPnB Glycol Ether	Tripropylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_3\text{H}$	248.4	274	259/126 ¹
	DOWANOL™ PPh Glycol Ether	Propylene Glycol Phenyl Ether	$\text{C}_6\text{H}_5\text{OCH}_2\text{CHOHCH}_3$	152.2	243	247/119 ¹
	DOWANOL™ DiPPh Glycol Ether	Dipropylene Glycol Phenyl Ether	$\text{C}_6\text{H}_5\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{H}$ (major)	210.2	280	280/138
	DOWANOL™ PGDA Glycol Ether	Propylene Glycol Diacetate	$\text{CH}_3\text{COOCH}_2\text{CH}(\text{CH}_3)\text{OOCCH}_3$	160	191	187/86 ²
	DOWANOL™ LoV 485	Bis-dipropylene Glycol n-Butyl Ether Adipate	$\text{C}_4\text{H}_9[\text{OCH}_2\text{CH}(\text{CH}_3)]_2\text{OC}(\text{O})\text{C}_4\text{H}_8\text{C}(\text{O})\text{O}[(\text{CH}_3)\text{CHCH}_2\text{O}]_2\text{C}_4\text{H}_9$	460.69	485	312/156
PROGLYDE™ DMM Glycol Diether	Dipropylene Glycol Dimethyl Ether	$\text{CH}_3\text{O}[\text{CH}_2\text{CH}(\text{CH}_3)\text{O}]_2\text{CH}_3$	162.2	175	149/65 ¹	
E-Series Glycol Ethers	Methyl CARBITOL™ Solvent	Diethylene Glycol Methyl Ether	$\text{CH}_3\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{H}$	120.1	194.1	197/92 ²
	Methoxytriglycol	Triethylene Glycol Methyl Ether	$\text{CH}_3\text{O}(\text{CH}_2\text{CH}_2\text{O})_3\text{H}$	164.2	249.2	275/135 ²
	CARBITOL™ Solvent	Diethylene Glycol Ethyl Ether	$\text{CH}_3\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{H}$	134.2	202	205/96 ²
	Ethoxytriglycol	Triethylene Glycol Ethyl Ether	$\text{C}_2\text{H}_5\text{O}(\text{CH}_2\text{CH}_2\text{O})_3\text{H}$	178.2	256.3	265/129 ²
	Propyl CELLOSOLVE™ Solvent	Ethylene Glycol Propyl Ether	$\text{C}_3\text{H}_7\text{OCH}_2\text{CH}_2\text{OH}$	104.2	151.3	124/51 ²
	Butyl CELLOSOLVE™ Solvent	Ethylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{OCH}_2\text{CH}_2\text{OH}$	118.2	170.7	149/65 ²
	Butyl CARBITOL™ Solvent	Diethylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{H}$	162.2	230.4	210/99 ²
	Butoxytriglycol	Triethylene Glycol n-Butyl Ether	$\text{C}_4\text{H}_9\text{O}(\text{CH}_2\text{CH}_2\text{O})_3\text{H}$	206.3	279.7	280/138 ²
	Butyl CELLOSOLVE™ Acetate	Ethylene Glycol n-Butyl Ether Acetate	$\text{C}_4\text{H}_9\text{OCH}_2\text{CH}_2\text{OOCCH}_3$	160.21	192	160/71 ²
	Butyl CARBITOL™ Acetate	Diethylene Glycol n-Butyl Ether Acetate	$\text{C}_4\text{H}_9\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{OCCH}_3$	204.27	245.3	216/102 ²
	Hexyl CELLOSOLVE™ Solvent	Ethylene Glycol Hexyl Ether	$\text{C}_6\text{H}_{13}\text{OCH}_2\text{CH}_2\text{OH}$	146.2	208	195/91 ²
	Hexyl CARBITOL™ Solvent	Diethylene Glycol Hexyl Ether	$\text{C}_6\text{H}_{13}\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{H}$	190.3	259.1	275/135 ²
	DOWANOL™ EPh Glycol Ether	Ethylene Glycol Phenyl Ether	$\text{C}_6\text{H}_5\text{OCH}_2\text{CH}_2\text{OH}$	138.2	244	250/121 ¹
	DOWANOL™ DiEPh Glycol Ether	Diethylene Glycol Phenyl Ether	$\text{C}_6\text{H}_5\text{O}(\text{CH}_2\text{CH}_2\text{O})_2\text{H}$ (major)	182.2	282	280/138
	DOWANOL™ EPh6 Glycol Ether	Poly(oxy-1,2-ethanediyl), alpha-phenyl-omega-hydroxy	$\text{C}_6\text{H}_5\text{O}(\text{CH}_2\text{CH}_2\text{O})_6\text{H}$ (average component)	358.4	>350	>300/>149
	DOWANOL™ DPH 255 Glycol Ether	Ethylene Glycol Phenyl Ether (major)	$\text{C}_6\text{H}_5\text{OCH}_2\text{CH}_2\text{OH}$ (major)	138.2	254	280/138

These properties are typical of the product, but should not be confused with, or regarded as, sales specifications.

solvency allows glycol ethers to be used to reduce viscosity while minimizing VOCs. DOWANOL™ LoV 485 was recently developed to offer the lowest VOC in the industry (<0.5 wt%) and meet regulations while helping to decrease impact to the environment.

In waterborne coatings, glycol ethers are excellent coalescent agents, and their unique hydrophobe/lipophobe balance allows for a broad range of coalescent efficiencies for different resins. They are also used as dye carriers in the textile, leather and printing industries and as solvents for insecticides and herbicides. For reactive and more hydrophobic systems, glycol ether esters and methyl capped glycol di-ethers offer stability and high solvency.



DOWANOL™ Glycol Ether products can prevent a component from separating in cosmetic formulations and help maintain its clarity, even when the product is exposed to extreme temperatures.

Evaporation Rate nBuAc=1	Specific Gravity at 25/25°C	Density lb/gal at 25°C	Density g/cc at 25°C	Viscosity cP at 25°C	Vapor Pressure, mm Hg at 20°C	CAS Number	Surface Tension, dynes/cm	Hansen Solubility Parameters (joules/cm ³) ^{1/2}			Solubility wt% at 25°C	
								delta d	delta p	delta h	In Water	Water In
0.62	0.919	7.65	0.916	1.7	8.7	107-98-2	27.7	15.6	7.2	13.6	∞	∞
0.035	0.951	7.91	0.948	3.7	0.28	34590-94-8	28.8	15.5	4.0	10.3	∞	∞
0.0026	0.965	8.03	0.962	5.5	0.01	25498-49-1	30.0	15.1	2.5	8.7	∞	∞
0.33	0.966	8.04	0.963	1.1	2.8	108-65-6	28.9	15.6	5.6	9.8	16.0	3.0
0.015	0.977	8.13	0.974	1.7	0.08	88917-22-0	27.3	16.3	4.9	8.0	16.0	3.5
0.21	0.883	7.34	0.880	2.4	1.53	1569-01-3	25.4	15.3	4.9	11.2	∞	∞
0.014	0.919	7.65	0.916	3.9	0.08	29911-27-1	27.8	15.0	2.9	9.2	19.6	20.3
0.093	0.878	7.30	0.875	2.8	0.85	5131-66-8	27.5	15.2	4.2	10.5	5.5	15.5
0.006	0.91	7.57	0.907	4.9	0.04	29911-28-2	28.4	14.8	2.5	8.7	4.5	12.0
0.0004	0.93	7.73	0.927	7.0	0.002	55934-93-5	29.7	14.8	1.7	7.9	4.5	8.0
0.002	1.062	8.84	1.059	25.2	0.01	770-35-4	38.1	17.4	5.3	11.5	1.0	6.0
0.0002	1.0513	8.75	1.041	36	<0.002	051730-94-0	37.7	17.6	5.9	10.7	1.5	8
0.039	1.056	8.77	1.051	2.6	0.23	623-84-7	32.5	15.8	3.5	8.8	7.4	4.1
<0.000001	0.97557	8.12	0.973	19.4	<0.000001	189047-80-1	25.77	16.1	4.0	6.0	<1.0	<1.0
0.13	0.902	7.50	0.899	1.0	0.55	111109-77-4	26.3	14.9	2.1	3.8	35.0	4.5
0.019	1.020	8.49	1.017	3.5	0.23	111-77-3	32.5	16.2	7.8	12.6	∞	∞
0.002	1.046	8.70	1.043	6.2	0.008	112-35-6	37.4	16.0	7.0	11.2	∞	∞
0.013	0.989	8.23	0.986	3.6	0.09	111-90-0	31.8	16.1	9.2	12.2	∞	∞
0.002	1.021	8.50	1.018	6.8	0.006	112-50-5	33.7	16.0	6.8	10.6	∞	∞
0.22	0.91	7.57	0.907	2.7	1.77	2807-30-9	26.3	16.1	8.0	13.1	∞	∞
0.079	0.901	7.49	0.898	2.9	0.66	111-76-2	27.4	16.0	7.6	12.3	∞	∞
0.004	0.951	7.91	0.948	4.9	0.028	112-34-5	30.0	16.0	7.0	10.6	∞	∞
0.0004	0.987	8.21	0.984	7.9	0.0015	143-22-6	29.8	16.0	6.4	9.9	∞	∞
0.04	0.941	7.83	0.938	1.6	0.38	112-07-2	29.6	16.0	4.5	8.8	1.6	1.8
0.0017	0.978	8.14	0.975	4.5	0.007	124-17-4	30	16.0	4.1	8.2	4.0	3.4
0.0082	0.866	7.37	0.883	4.5	0.038	112-25-4	27.7	16.0	6.9	10.9	0.88	17.7
0.0006	0.931	7.74	0.928	6.2	0.001	112-59-4	29.2	16.0	6.0	10.0	2.00	53.40
0.001	1.109	9.23	1.106	21.5	0.004	122-99-6	42.0	17.8	5.7	14.3	2.5	9.0
0.0002	1.112	9.29	1.109	30	<0.002	104-68-7	37.7	16.4	6.7	11.6	4.00	22
<0.0001	1.12	9.06	1.120	89-93	<0.0001	9004-78-8	45.2	17.4	6.6	10.6	∞	∞
<0.001	1.111	9.28	1.112	40	<0.004	122-99-6 / 104-68-7	42	17.3	6.1	13.3	3.00	12.0

Regulatory information on Dow Glycol Ethers as of August 2005

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) spill requirements
Superfund Amendment and Reauthorization Act (SARA) Title III Release reporting required
Volatile Organic Compound (VOC), per Federal Register, Vol. 57, No. 22, 1/3/92, per Title I, Clean Air Act Amendments of 1990
Hazardous Air Pollutant (HAP) compound per Title III, Clean Air Act Amendments of 1990

P-Series

No
No
Yes
No

E-Series

Yes – No reportable quantity
Yes
Yes
Yes (except butyl CELLOSOLVE
and DOWANOL EPH6)

¹ Setflash Method (closed cup)

² Tag Closed Cup (TCC)

³ Not available in Europe

∞ Miscible

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