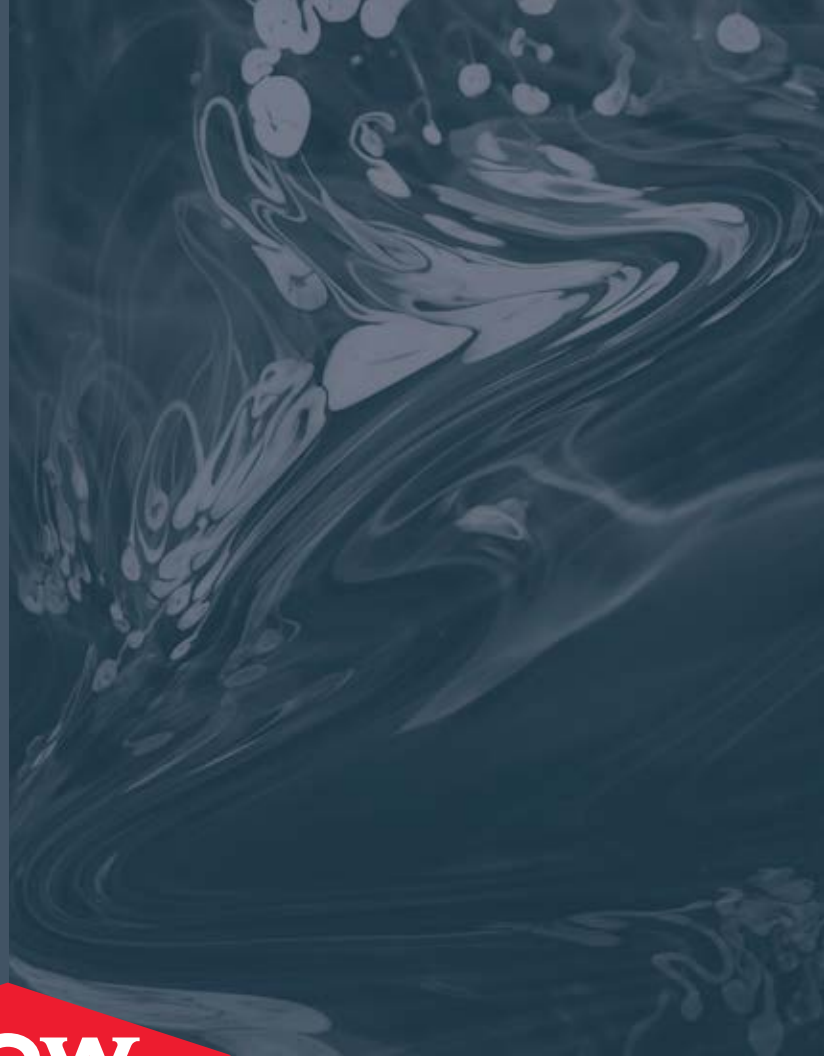


Oxygenated solvents portfolio

DOW

®

**Volatile organic
content compliance**



Solvent solutions for your coating compliance needs

Dow's broad line of esters and alcohols are critical for today's solvent-based coatings. With increasing demands on performance and compliance, formulators are seeking solvents for high-solids coatings.

UCAR™ n-Alkyl Propionates from Dow can lower costs, eliminate HAPs and reduce odor. They're an ideal alternative when you want to reformulate away from HAPs solvents and retain strong solvency and high electrical resistivity. UCAR™ n-Alkyl Propionates offer a range of evaporation rates to suit many of today's applications, including high-solids and electrostatically sprayed coatings.

In addition, Dow offers a broad line of glycol ethers, providing today's paint formulator many HAP-free options to enhance the performance of water-based coatings. Dow's P-Series glycol ethers, which are sold under the tradename DOWANOL™, feature powerful coalescing efficiency and coupling ability, resulting in excellent film formation with very low VOC content. DOWANOL™ LoV 485 Glycol Ether is a non-HAPs, P-Series glycol ether ester with <0.5 wt% VOC content by ASTM D6886 which displays excellent coalescing properties with acrylic, styrene-acrylic, and vinyl acrylic latex binders.



Dow’s portfolio of oxygenated solvents

	Product	Empirical formula	Molecular weight (g/mol)	CAS number	Density (lb/gal at 20°C)	Boiling point (°C at 70mm Hg)	Flash point (°C)	Vapor pressure (mm Hg at 20°C)	Evaporation rate (nBuAc=1)	Consumer products US EPA LVP Exemption¹	HAP according to Title III of the Clean Air Act²	SARA Title III Sec. 313³	Maximum Incremental Reactivity (MIR) value⁴
Alcohols	Primary Amyl Alcohol Mixed Isomers	C ₅ H ₁₁ OH (mixed isomers)	88.15	137-32-6; 71-41-0	6.79	133.2	45	2.2	0.30 ^a	VOC	No	No	3.35
	n-Butanol	C ₄ H ₉ OH	74.12	71-36-3	6.75	117.7	36	4.9	0.44	VOC	No	No	3.34
	2-Ethylhexanol	CH ₃ (CH ₂) ₃ CH(C ₂ H ₅)CH ₂ OH	130.23	104-76-7	6.94	184.6	72	0.09	0.02	not VOC	No	No	2.20
	Isobutanol	(CH ₃) ₂ CHCH ₂ OH	74.12	78-83-1	6.68	107.9	28	8.1	0.63	VOC	No	No	2.24
	2-Methyl Butanol	C ₂ H ₅ CH(CH ₃)CH ₂ OH	88.15	137-32-6	6.82	128.7	45	3.8	0.50	VOC	No	No	2.60
	n-Pentanol	C ₅ H ₁₁ OH	88.15	71-41-0	6.79	137.9	48	1.4	0.30	VOC	No	No	3.35
	n-Propanol	C ₃ H ₇ OH	60.10	71-23-8	6.71	97.2	23	15.2	0.87	VOC	No	No	2.74
P-Series esters	Primary Amyl Acetate Mixed Isomers	C ₅ H ₁₁ OC(O)CH ₃ (mixed isomers)	130.19	628-63-7; 624-41-9	7.29	146.0	25	4	0.39 ^b	VOC	No	No	0.96
	n-Butyl Acetate	C ₄ H ₉ OC(O)CH ₃	116.16	123-86-4	7.35	126.2	22	8.5	1.00	VOC	No	No	0.89
	Isobutyl Acetate	(CH ₃) ₂ CHCH ₂ OC(O)CH ₃	116.16	110-19-0	7.26	118.0	18	13.6	1.52	VOC	No	No	0.67
	Isopropyl Acetate	(CH ₃) ₂ CHOC(O)CH ₃	102.13	108-21-4	7.28	88.5	2	45.7	3.50	VOC	No	No	1.12
	n-Propyl Acetate	C ₃ H ₇ OC(O)CH ₃	102.13	109-60-4	7.39	101.5	14	25.0	2.13	VOC	No	No	0.87
	UCAR™ Ester EEP	C ₂ H ₅ OC ₂ H ₄ C(O)OCH ₂ CH ₃	146.19	763-69-9	7.91	169.7	60	0.9	0.12	VOC	No	No	3.61
	UCAR Filmer IBT	(CH ₃) ₂ CHCH(OH)C(CH ₃) ₂ CH ₂ OC(O)CH(CH ₃) ₂	216.00	25265-77-4	7.89	255.0	120	<0.01	<0.01	not VOC	No	No	0.89
	UCAR n-Propyl Propionate	C ₃ H ₇ OC(O)CH ₂ CH ₃	116.16	106-36-5	7.34	122.4	24	10.7	1.21	VOC	No	No	0.93
	UCAR n-Butyl Propionate	C ₄ H ₉ OC(O)CH ₂ CH ₃	130.19	590-01-2	7.30	144.7	38	3.4	0.45	VOC	No	No	0.89
	UCAR n-Pentyl Propionate	C ₅ H ₁₁ OC(O)CH ₂ CH ₃	144.22	624-54-4	7.28	165.0	57	1.5	0.18	VOC	No	No	0.79

^a Based on n-amyl alcohol
^b Based on n-amyl acetate
¹ 40 CFR Chapter 1 Subpart C. National Volatile Organic Compound Emission Standards for Consumer Products, 59.203 From 63 FR 48831 Sept 11, 1998
² Hazardous Air Pollutant (HAP) compound per Title III, Clean Air Act Amendments of 1990
³ Superfund Amendment and Reauthorization Act (SARA) Title III Release reporting required
⁴ EPA 40 CFR Parts 51 & 59 [EPA-HQ-OAR-2006-0971;RIN 2060 -AN 69] National VOC Emission Standards for Aerosol Coatings

Because applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether the information on this document is appropriate for Customer use.

The Dow Chemical Company is providing information in good faith; it is the responsibility of the Customer to check that their end-use formulations are in compliance with the local laws or decisions listed in the Tables.

Dow’s portfolio of oxygenated solvents

	Product (Grade)	Chemical name	Empirical formula	Molecular weight (g/mol)	CAS Number	Density (lb/gal at 20°C)	Boiling point (°C at 70mm Hg)	Flash point (°C)	Vapor pressure (mm Hg at 20°C)	Evaporation rate (nBuAc=1)	EPA Method 24/ASTM D6886	Consumer products US EPA LVP Exemption ²	HAP according to Title III of the Clean Air Act ³	SARA Title III Sec. 313 ⁴	Maximum Incremental Reactivity (MIR) Value ⁵
P-Series Glycol Ethers	DOWANOL™ PM	Propylene glycol mono methyl ether	C ₄ H ₁₀ O ₂	90.1	107-98-2	7.65	120	31 ^a	8.70	0.62	VOC	VOC	No	No	2.62
	DOWANOL™ DPM	Dipropylene glycol mono methyl ether	C ₇ H ₁₆ O ₃	148.2	34590-94-8	7.91	190	75 ^a	0.28	0.035	VOC	VOC	No	No	2.21
	DOWANOL™ TPM	Tripropylene glycol mono methyl ether	C ₁₀ H ₂₂ O ₄	206.3	25498-49-1	8.03	243	121 ^b	0.01	0.0026	VOC	Not VOC	No	No	1.90
	DOWANOL™ PnP	Propylene glycol mono propyl ether	C ₆ H ₁₄ O ₂	118.2	1569-01-3	7.34	149	48 ^a	1.53	0.21	VOC	VOC	No	No	2.86
	DOWANOL™ DPnP	Dipropylene glycol mono propyl ether	C ₉ H ₂₀ O ₃	176.2	29911-27-1	7.65	213	88 ^a	0.08	0.014	VOC	Not VOC	No	No	2.13
	DOWANOL™ PnB	Propylene glycol mono n-butyl ether	C ₇ H ₁₆ O ₂	132.2	5131-66-8	7.30	171	63 ^a	0.85	0.093	VOC	VOC	No	No	2.70
	DOWANOL™ DPnB	Dipropylene glycol mono n-butyl ether	C ₁₀ H ₂₂ O ₃	190.3	29911-28-2	7.57	230	100 ^a	0.04	0.006	VOC	Not VOC	No	No	1.96
	DOWANOL™ TPnB	Tripropylene glycol mono n-butyl ether	C ₁₃ H ₂₆ O ₄	248.4	55934-93-5	7.73	274	126 ^a	0.002	0.0004	VOC	Not VOC	No	No	1.55
	DOWANOL™ PPh	Propylene glycol phenyl ether	C ₉ H ₁₂ O ₂	152.2	770-35-4	8.84	243	119 ^a	0.01	0.002	VOC	Not VOC	No	No	1.73
P-Series Esters	DOWANOL™ PGDA	Propylene glycol diacetate	C ₇ H ₁₂ O ₄	160.2	770-35-4	8.77	191	86 ^b	0.23	0.039	VOC	VOC	No	No	0.94
	DOWANOL™ PMA	Propylene glycol mono methyl ether acetate	C ₆ H ₁₂ O ₃	132.2	108-65-6	8.04	146	42 ^b	2.80	0.33	VOC	VOC	No	No	1.71
	DOWANOL™ DPMA	Dipropylene glycol methyl ether acetate	C ₉ H ₁₈ O ₄	190.2	88917-22-0	8.13	209	86 ^b	0.08	0.015	VOC	Not VOC	No	No	1.49
	DOWANOL™ Lov 485	Dipropylene glycol n-butyl ether adipate	C ₂₆ H ₅₀ O ₈	490.69	189047-80-1	8.12	485	156 ^b	<0.000001	<0.000001	<0.5%	Not VOC	No	No	Not Available
E-Series Glycol Ethers	Methyl CARBITOL™	Diethylene glycol mono methyl ether	C ₇ H ₁₄ O ₃	120.1	111-77-3	8.49	194	92 ^b	0.23	0.019	VOC	VOC	Yes	Yes	2.90
	CARBITOL™ Solvent	Diethylene glycol mono ethyl ether	C ₆ H ₁₄ O ₃	134.2	111-90-0	8.23	202	96 ^b	0.09	0.013	VOC	Not VOC	Yes	Yes	3.19
	Propyl CELLOSOLVE™	Ethylene glycol mono propyl ether	C ₅ H ₁₂ O ₂	104.2	2807-30-9	7.57	151	51 ^b	1.77	0.22	VOC	VOC	Yes	Yes	3.52
	Butyl CELLOSOLVE™	Ethylene glycol mono butyl ether	C ₆ H ₁₄ O ₂	118.2	111-76-2	7.49	171	65 ^b	0.66	0.079	VOC	VOC	No	Yes	2.90
	Butyl CARBITOL™	Diethylene glycol mono butyl ether	C ₈ H ₁₈ O ₃	162.2	112-34-5	7.91	230	99 ^b	0.028	0.004	VOC	Not VOC	Yes	Yes	2.87
	Hexyl CELLOSOLVE™	Ethylene glycol mono hexyl ether	C ₈ H ₁₈ O ₂	146.2	112-25-4	7.37	208	91 ^b	0.038	0.0082	VOC	Not VOC	Yes	Yes	2.45
	Hexyl CARBITOL™	Diethylene glycol mono hexyl ether	C ₁₀ H ₂₂ O ₃	190.3	112-59-4	7.74	259	135 ^b	0.001	0.0006	VOC	Not VOC	Yes	Yes	2.03
	DOWANOL™ EPH	Ethylene glycol phenyl ether	C ₆ H ₁₀ O ₂	138.2	122-99-6	9.23	244	121 ^b	0.004	0.001	VOC	Not VOC	Yes	Yes	3.61
	DOWANOL EPh6	Poly(oxy-1,2-ethanediyl), alpha-phenyl-omega-hydroxy	C ₁₈ H ₃₀ O ₇	358.4	9004-78-8	9.06	>350	>149	<0.0001	<0.0001	<5.0%	Not VOC	No	No	Not Available
E-Series Esters	Butyl CARBITOL™ Acetate	Diethylene glycol mono n-butyl ether acetate	C ₁₀ H ₂₀ O ₄	204.3	124-17-4	8.14	245	102 ^b	0.007	0.0017	VOC	Not VOC	Yes	Yes	1.38
	Butyl CELLOSOLVE™ Acetate	Ethylene glycol mono n-butyl ether acetate	C ₈ H ₁₅ O ₃	160.2	112-07-2	7.83	192	71 ^b	0.38	0.04	VOC	VOC	Yes	Yes	1.67
Di-ethers	PROGLYDE™ DMM	Dipropylene glycol dimethyl ether	C ₈ H ₁₈ O ₃	162.2	111109-77-4	7.50	175	65 ^a	0.55	0.13	VOC	VOC	No	No	2.09

^a Setaflash Closed Cup ASTM D3278

^b Tag Closed Cup ASTM D56

¹ Volatile Organic Compound (VOC) per Federal Register, Vol 57, No. 221/3/92, per Title 1. Clean Air Act Amendments of 1990

² 40 CFR Chapter 1 Subpart C. National Volatile Organic Compound Emission Standards for Consumer Products, 59.203 From 63 FR 48831 Sept 11, 1998

³ Hazardous Air Pollutant (HAP) compound per Title III, Clean Air Act Amendments of 1990

⁴ Superfund Amendment and Reauthorization Act (SARA) Title III Release reporting required

⁵ EPA 40 CFR Parts 51 & 59 [EPA-HQ-OAR-2006-0971;RIN 2060 -AN 69] National VOC Emission Standards for Aerosol Coatings

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Form No. 110-01141-01-0622 S2D