

## PChem® Acrylic Polyols

Product	Solid%	Mw	Inherent Viscosity	Tg (°C)	Acid Value (mg KOH/g)	Hydroxyl Value (mg KOH/g)	Applications
BM44D	100	100,000	0.40	54	< 1	26	Hot melt adhesives
BM46	100	100,000	0.40	82	< 1	13	Hot melt adhesives
BM51	100	60,000	0.24	33	5	60	Printing inks
BM52	100	70,000	0.28	63	67	22	Printing inks
BM53	100	40,000	0.17	102	< 1	22	Printing inks
BM54	100	72,500	0.28	52	7	40	Hot melt adhesives
BM55HB	100	100,000	0.47	66	< 1	43	Industrial coatings, general metal coatings
BM259	100	15,000	0.10	50	10	80	Coatings and inks
BM260	100	20,000	0.11	50	7	35	Printing inks,
BM261	100	20,000	0.11	66	7	80	Printing inks,
BM262	100	50,000	0.24	50	7	80	Industrial coatings, automotive topcoat, automotive refinish
BM268	100	250,000	0.65	75	5	66	Industrial coatings
BM655	100	10,000	0.10	62	55	24	Printing inks
BM666	100	5,000	0.06	63	7	140	Printing inks, general metal coatings, furniture coatings
BM667	100	5,000	0.06	63	7	128	Printing inks, general metal coatings, furniture coatings
BM701C	100	200,000	0.41	-45	<1	9	Pressure sensitive adhesives, hot melt adhesives
BM716	100	400,000	0.55	-45	<1	13	Pressure sensitive adhesives, hot melt adhesives
BM723	100	5000	0.06	-49	-	34	Pressure sensitive adhesives, hot melt adhesives
BM751	100	25,000	0.14	49	6	9	Hot melt adhesives, printing inks
BM751A	100	50,000	0.24	49	6	9	Hot melt adhesives, printing inks
BM754	100	20,000	0.13	22	3	11	Hot melt adhesives
BM755	100	21,000	0.13	12	3	11	Hot melt adhesives

\* I.V.: "inherent viscosity of a solution containing 0.25g polymer in 50ml of methylene chloride measured at 20°C using a No. 50 Cannon-Fenske viscometer"

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October 2015



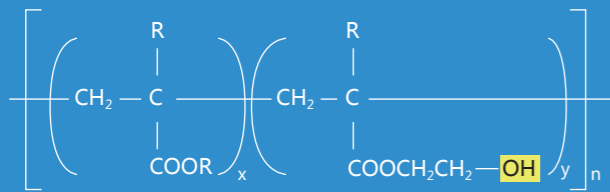
# PChem® Acrylic Polyols for Coatings, Inks and Adhesives



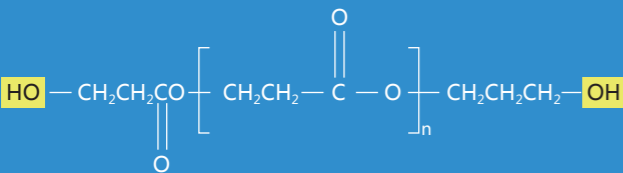
*The Passion for Polymers*



**PChem® Acrylic Polyols usually have the following chemical structure:**



**Polyester polyol's chemical structure:**



**Polyether polyol's chemical structure:**



Looking at this structure, PChem® Polyols have –OH (hydroxyl) functional groups on the side chain of polymer backbone through many monomer units. This is different from other polyols like polyether polyols or polyester polyols that only have –OH functional groups on the polymer chain ends. Therefore, acrylic polyols enable to control the crosslink density more effectively. The other benefits of acrylic polyols over other polyols are:

- Faster drying time
- Higher surface gloss
- Higher surface hardness
- Better chemical and solvent resistances
- Superior weathering resistance
- Higher impact strength when using low Tg polyols

Conventional two-component polyurethane (PU) systems are successfully used in various applications such as topcoats and clear coats, automotive repair coatings, industrial paints, furniture lacquers, plastic coatings, and adhesives etc. For instance, the crosslinking chemistry,

based on the hydroxyl functional group (-OH) on the PChem® grades with polyisocyanate hardeners (containing –NCO functional group), can be used in the proportion NCO/OH=1.5/1, resulting in crosslinked structures of PU with excellent outdoor durability, outstanding chemical resistance and mechanical properties. The urethane linkage in the polymer backbone provides high chemical resistance and the high density of hydrogen bonding results in the formation of a stable network, which contributes to the good mechanical properties of the coatings or inks. This is due to PChem® polyols having – OH (hydroxyl) functional groups on the side chain of polymer backbones through many monomer units. Usually, the MW of PChem® acrylic polyols is from low (3,000), medium (25,000) to high (400,000), providing a benefit to formulator versatility.

These grades have various hydroxyl numbers and acid numbers which offer good adhesion, excellent weather resistance, recoating capability, good pigmentation, good leveling property and high gloss retention. They

also have good compatibility with other resins and fast curing speed.

Comparing to other manufacturers who also offer acrylic polyols, our acrylic polyol resins are 100% solid, which offers the following competitive advantages and benefits :

- Easy material handling, no headaches of solvents, drum handling and storage
- Flexibility: allows the formulators to select their own solvents with maximum freedom to comply with VOC requirements
- No hazardous issues of solvents for formulators to handle
- Better chemical resistance and hardness due to much lower content of oligomers and residual monomers
- Better film formation
- High distinctness of image

