

Joncryl[®] xDTM-B

Product Description	Acrylic polyol for VOC compliant direct-to-metal applications
Key Features & Benefits	<ul style="list-style-type: none">- <i>Excellent dry and wet adhesion to multiple metal substrates</i>- <i>Excellent pot life</i>- <i>Good corrosion protection</i>- <i>High solids for low VOC capable formulation</i>- <i>High film hardness</i>
Chemical Composition	Modified acrylic polyol in n-butyl acetate solvent

Properties

Typical Properties	Appearance		clear liquid
	Non-volatile content	%	69-71
	Hydroxyl number of solids	mg KOH/g	~ 140
	Equivalent weight as supplied	g/eq	552
	Equivalent weight of solids	g/eq	400
	Glass transition temperature (T _g)	°C	26
	Viscosity at 23 °C	cP	2000-6000
	Solvent	n-butyl acetate	

These typical values should not be interpreted as specifications.

Applications

Joncryl xDTM-B is an acrylic polyol for solventborne DTM 2-component polyurethane coatings. It is used primarily in combination with Basonat[®] HI grade aliphatic polyisocyanates in ambient- or force-dried coatings.

Joncryl xDTM is recommended for the following applications:

- DTM industrial coatings
- Commercial vehicle coatings
- Automotive refinish primer/surfacers
- Industrial primers

Formulation Guidelines

Dispersing Agents

Direct-to-metal adhesion and corrosion performance depend, in part, on the dispersing agent used in the coating formula. Best all-around results have been found using Efka[®] PX 4751 to disperse titanium dioxide and anti-corrosive pigments.

Defoamers

Defoamers may not be required during processing. However, Efka PB 2010 can be utilized if necessary. This defoamer has been found to be effective in the pigment grind and may also reduce field rust in salt spray exposure.

Rheology Modifiers

A rheology modifier is recommended for anti-settling and sag control. Screening evaluations may be required depending on formulation viscosity.

Anti-Corrosive Pigments

Adhesion and corrosion performance depend, in part, on the anti-corrosive pigment used in the coating formula. Halox® SW-111 has been found to be a well-rounded anti-corrosive pigment in performance evaluation.

Solvent Selection

For VOC compliance as low as 2.1 lbs/gal, exempt solvents are required. Recommended solvents include tert-butyl acetate, acetone, parachlorobenzotrifluoride (PCBTF), methyl acetate, propylene carbonate and dimethylcarbonate. Non-exempted solvents can be used to formulate for VOC requirements above 2.1 lbs/gal. Selection should be chosen based on viscosity, application and dry speed, and VOC requirements.

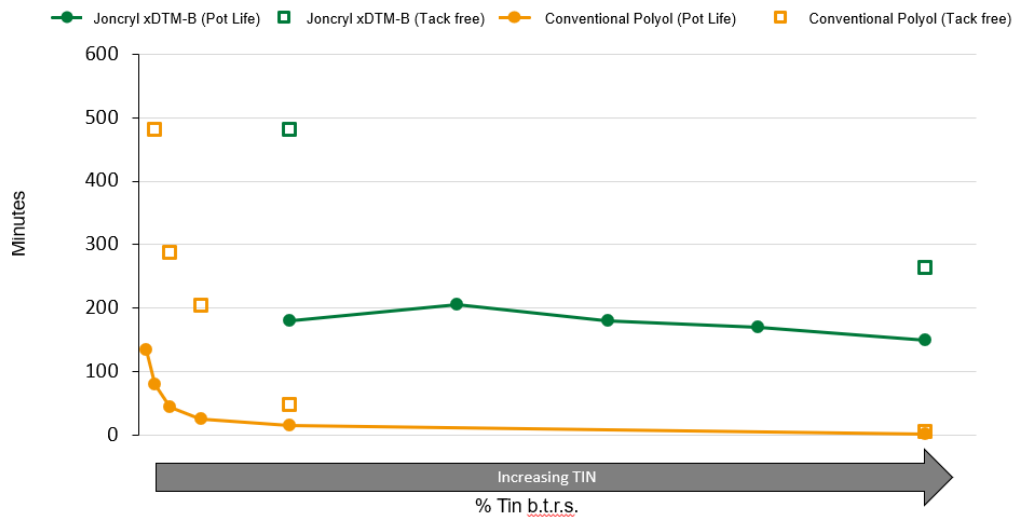
Hardener Selection

Hardeners can be chosen based on improved performance and formulation restrictions. Basonat HI grades are polyisocyanates based on isocyanurated HDI. This chemistry provides exceptional UV, chemical and solvent resistance along with increased hardness and flexibility. Basonat HB grades are biuret-modified polyisocyanates based on HDI. This grade will provide better flexibility than HI grades. When formulating at low VOC, it is recommended to cut the Part B with a VOC exempt solvent (if viscosity control is needed).

Pot-life / Dry time balance

Traditional polyols are affected by catalyst loading in a strong linear fashion when balancing pot-life and cure speed. Joncryl xDTM-B is unique in that increasing the level of catalyst can improve cure speed without the significant balancing needed for pot-life.

JONCRYL® xDTM-B v. Conventional Polyol Pot life v. % 'Tin' v. Dry times in 60 % n.v. Clears



¹ Halox is a registered trademark of Halox/ICL

Starting Point Formulation

The following starting point formulations are recommended for an initial evaluation of Joncryl xDTM-B. Additional optimization of the formulations will be required to achieve desired results for specific applications.

Part A	Wt %
Add liquids to vessel and mix with disperser blade at low to medium speed:	
JONCRYL® xDTM-B	22.80
EFKA® PX 4751	1.29
After liquids are mixed, add each solid during continued gentle agitation. Change speed and/or blade depth as needed.	
Ti-Pure® R960 ²	6.70
Halox SW-111	7.82
Disperse to desired fineness. Then decrease mixing speed and add the following (pre-mixed if possible):	
JONCRYL® xDTM-B	22.8
Acetone	12.73
t-Butyl Acetate	6.35
10% solution of DBTDL in acetone	0.32
EFKA® FL 3778	0.53
EFKA® RM 1469	0.80
Subtotal Part A	82.14
Part B	
Basonat® HI 100 NG	16.08
n-Butyl Acetate	0.89
Acetone	0.89
Subtotal Part B	17.86
Total	100.00

²Ti-Pure is a registered trademark of The Chemours Company

Formulation Attributes

Density (g/mL)	1.10
Solids (% by weight)	63%
Solids (% by volume)	58%
DBTDL (% on total resin solids)	0.65%
NCO:OH ratio	1.05
VOC (calculated) g/L vs [lbs/gal]	251 / [2.1]

Key Performance Features: High Gloss Pigmented White Formulation

Pot Life (hr)	~2.9
Gloss (20°, 60°, 85°)	>80
7 Day Humidity Gloss Retention	95%
7 Day Pendulum Hardness (swings)	>100
ASTM B117 Salt Spray, 2 mil DFT, >500 hrs	No rusting, no blistering

Joncryl xDTM-B Clear Formulation

Part A	Wt %
Joncryl xDTM-B	57.10
MAK	21.62
1% DBTDL (botrrs) in MAK	1.24
Part B	
Basonat HI 100 NG @ 1:1.05	20.04
Total	100

Formulation Attributes

Non-volatile	60% by wt
Viscosity (Part A + Part B) (RV S21 @ 200 rpm)	97 cP
NCO:OH	1.05:1.0

Safety

General

The usual safety precautions when handling chemicals must be observed. These include the measures described in Federal, State, and Local health and safety regulations, thorough ventilation of the workplace, good skin care, and wearing of protective goggles.

Safety Data Sheet

All safety information is provided in the Safety Data Sheet for Joncryl xDTM-B.

Storage

Please refer to the "Handling and Storage of polymer dispersions" brochure.

Important

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