PARALOID™ AU-2100

Product Description

PARALOID Resin AU-2100 is a new acrylic polyol for use in low VOC (<2.1 lb/ gal.) 2K solventborne urethane coatings for the industrial maintenance coatings markets. Standard application viscosities may be achieved without the use of expensive or highly flammable non-VOC solvents. Application and film properties are comparable to those obtained from commercially successful systems offered at higher VOCs (e.g., 2.8 lb/gal., or higher).

Further, PARALOID Resin AU-2100 may be formulated for conventional spray, again, without the use of non-VOC solvents, at low VOCs (< 2.8 lb/gal.) for use in the general industrial markets such as ACE (agricultural and construction equipment), farm implements and machinery, etc.

PARALOID Resin AU-2100 can also be formulated as a baking, or stoving, system with melamine or urea resins for those industrial finishes needing either faster property development or slightly different performance needs.

Typical Properties

These properties are typical but do not constitute specifications.

Weight, % Solids	81
Viscosity, Brookfield, 25 deg. C, cP	7,500
Density, lb/gal.	8.46
Solvent	Methyl amyl ketone
Color, APHA	60
Hydroxyl Equivalent Weight, mg KOH/gm	700
Tg, deg. C	30

(White) Urethane Topcoat With AU-2100 at 2.0 lbs/gal (239 g/l) VOC, Airless Spray With Performance Data

Component # "A" Sand or Media Mill	**Pounds**	**Gallons**
TiO_2, R-960	450.0*	13.9
PARALOID AU-2100 (81.0%)	196.0	23.3
Methyl amyl ketone	97.0	13.6
Disperbyk 163	9.0	1.1
Sub-totals	**752.0**	**51.9**

**Used 450 lb. Normally far less used, with extenders, to attain 20 PVC at low VOC.*

Letdown:		
PARALOID AU-2100 (81.0%)	304.0	35.4
Metacure T-12, 10% in PMAc	0.7	0.1
Tinuvin 292 (HALS)	3.0	0.4
Tinuvin 1130 (UV absorber)	5.0	0.5
Byk 300	1.0	0.1
Above Mill Base	752.0	51.9

Component "A" total (Viscosity = 840 cps)	**1065.7**	**88.4**
Component "B" (Add below to Component "A" with good stirring at point-of-use.)		
Polyisocyanate, Aliphatic, 100% (HEW = 185-190)	111.0	11.6
Total Paint	**1176.7**	**100.0**

Physical Properties	
Weight Solids (%)	82
Volume Solids(%)	69
Viscosity, cP	1100
NCO/OH Ratio	1.05/1.0
PVC (%)	20
VOC lb/gal (g/l), at application	2.0(239)
Catalyst level, % on total solid resin	0.014

Application

2-3 mils, dft, on either 20 ga. A-600 treated aluminum, or 18 ga. clean untreated cold-rolled steel Pot life = 110 minutes; Dry-to-touch = 1-2 hrs.; Dry through = overnight; films air-dried ambient

Film Properties

Appearance Durability	**Glosss, 20 deg./60 deg.**	**"b" value**
Initial	95/99	0.4
1000 // 2000 // 2500 hr QUV-A	90/98 // 84/94 // 83/94	1.1 // 1.4 // 1.7
1000 // 2000 // 2500 hr QUV-B	69/88 // 36/71 // 12/45	1.6 // 2.5 // 2.9

Koenig Hardness, swings:

1 / 2 / 4 / 10 days — 13 / 30 / 48 / 65

Mandrel flex., 1/8", after 10 days:

Pass (no damage)

Impact Resistance, after 10 days:

Direct - 110-120 in. lbs; Reverse - 80-90 in. lbs

Crosshatch adhesion, dry // wet (% failure, after 10 days):

DTM, Treated aluminum - 0 // 0
DTM, cold-rolled steel - 0 // 20, recovered

Corrosion Resistance, on steel - Salt-spray 10 days, 10 is best

Scribe -6 (slight undercut with slight blistering)
Face -10 (no damage)

Chemical Resistance (spot tests, covered, 1 hour), 10 is best

Acetic acid, 20% Aq.	9
Sulfuric acid, 20% Aq.	10
Sodium Hydroxide, 10% Aq.	10
Unleaded gasoline	7 (slight swelling; recovered)
Mustard	9 (trace residual)
Skydrol LD-4	5 (mod. swelling, incomplete recovery)

(White) Urethane Topcoat With AU-2100 at 2.6 lbs TiO_2/gal With Extender

Component # "A" **Sand or Media Mill**	**Pounds**	**Gallons**
TiO_2, R-960	260.0	8.1
PARALOID AU-2100 (81.0%)	169.9	19.8
Methyl amyl ketone	84.1	12.4
Disperbyk 163	7.8	1.0
Imsil A-10	88.9	4.0
Sub-totals	**610.6**	**45.1**
Letdown:		
PARALOID AU-2100 (81.0%)	263.5	30.6
Metacure T-12, 10% in PMAc	0.6	0.1
Tinuvin 292 (HALS)	2.6	0.3
Tinuvin 1130	4.3	0.5
Byk 300	1.0	0.1
Above Mill Base	610.6	45.1
Methyl amyl ketone*	88.4	13.0
Component "A" total	**971.0**	**89.8**
Component "B" (Add below to Component "A" with good stirring at point-of-use.)		
Polyisocyanate, Aliphatic, 100% (HEW = 185-190)	97.0	10.0
Total Paint	**1068.0**	**100.0**

Physical Properties

Weight Solids (%)	74.6
Volume Solids (%)	60.6
NCO/OH Ratio	1.05/1.0
Catalyst level, % on total solid resin	0.014
VOC	2.7 lbs/gal.
PVC	20

* The MAK level in the letdown is at maximum level for a 2.7 lbs/gal VOC. You can adjust the level accordingly to obtain the desirable viscosity /VOC.

(White) Urethane Topcoat With AU-2100 at 2.4 lbs/gal VOC Using 3.0 lbs TiO_2/gal

Component # "A" **Sand or Media Mill**	**Pounds**	**Gallons**
TiO_2, R-960	300.0	9.3
PARALOID AU-2100 (81.0%)	196.0	22.8
Methyl amyl ketone	128.7	18.9
Disperbyk 163	6.0	0.7
Sub-totals	**630.7**	**51.7**
Letdown:		
PARALOID AU-2100 (81.0%)	304.0	35.4
Metacure T-12, 10% in PMAc	0.7	0.1
Tinuvin 292 (HALS)	3.0	0.4
Tinuvin 1130 (UV absorber0	5.0	0.5
Byk 300	1.0	0.1
Above Mill Base	630.7	51.7
Component "A" total	**944.4**	**88.2**
Component "B" (Add below to Component "A" with good stirring at point-of-use.)		
Polyisocyanate, Aliphatic, 100% (HEW = 185-190)	111.0	11.8
Total Paint	**1055.4**	**100.0**

Physical Properties	
NCO/OH Ratio	1.05/1.0
Catalyst level, % on total solid resin	0.014
VOC	2.4 lbs/gal.
PVC (%)	14
Volume Solids(%)	65.3

(White) Urethane Topcoat With AU-2100 at 2.5 lbs/gal VOC Using 2.25 lbs TiO_2/gal

Component # "A" **Sand or Media Mill**	**Pounds**	**Gallons**
TiO_2, R-960	225.0	7.0
PARALOID AU-2100 (81.0%)	196.0	22.8
Methyl amyl ketone	144.6	21.3
Disperbyk 163	4.5	0.6
Sub-totals	**570.1**	**51.7**
Letdown:		
PARALOID AU-2100 (81.0%)	304.0	35.4
Metacure T-12, 10% in PMAc	0.7	0.1
Tinuvin 292 (HALS)	3.0	0.4
Tinuvin 1130 (UV absorber)	5.0	0.5
Byk 300	1.0	0.1
Above Mill Base	570.1	51.7
Component "A" total	**883.8**	**88.2**
Component "B" (Add below to Component "A" with good stirring at point-of-use.)		
Polyisocyanate, Aliphatic, 100% (HEW = 185-190)	111.0	11.8
Total Paint	**994.8**	**100.0**

Physical Properties	
NCO/OH Ratio	1.05/1.0
Catalyst level, % on total solid resin	0.014
VOC	2.5 lbs/gal.
PVC (%)	11
Volume Solids(%)	63.0

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