PRIMAL™ AC-337 ER

UNIVERSAL 100% ACRYLIC EMULSION

imagine the possibilities™

SUMMARY

Primal™ AC-337 ER is a 100% acrylic emulsion designed for high performance coatings in a variety of exterior and interior applications. This binder provides an extremely hydrophobic film, leading to excellent water resistance and reduced liquid water permeability.

Primal™ AC-337 ER has been developed to react more efficiently with associative thickeners, leading potentially to lower formulation cost. Primal Primal™ AC-337 ER also shows improved colour acceptance and alkyd compatibility.

The 100% acrylic backbone ensures the high standard of gloss retention, tint retention, crack resistance, chalk resistance and alkali resistance. The outstanding adhesion technology will ensure excellent adhesion to wood and substrates previously coated with alkyd paints.

Primal™ AC-337 ER demonstrates wide formulation latitude ranging from matt to gloss paints and stains, in interior and exterior applications. The in-can clarity makes it possible to prepare transparent and semi-transparent stains with more attractive application properties than conventional ("milky") alkyd emulsion or acrylic emulsion based stains. The hardness level makes it a suitable binder for miscellaneous applications such as interior undercoats, masonry paints and floor paints, making it a truly general purpose or "universal" binder for paint companies wishing to stock a minimum number of raw materials.

Characteristics of the Product

- Excellent rheology modifier response
- Very good wet and dry adhesion
- Excellent water resistance
- Good colour acceptance
- APEO-free
- In-can clarity (stains)
- Good dirt pick up resistance
- Excellent exterior durability

Typical Physical Properties (Not to be used as specifications)	
Appearance	Milky white liquid
Solids content %	45.5
pH	7.5 - 8.5
Brookfield LV Viscosity (Spindle 3, 60 rpm)	50 – 1500 mPa.s
Minimum Film Formation Temperature	12 – 16°C
Specific gravity (dry polymer)	1.13 g/cm^3
Specific gravity (wet polymer)	1.06 g/cm^3

FORMULATIONS

FORMULATIONS GUIDELINES

Rheology Modifiers and Thickeners

Primal™ AC-337 ER has been designed to give good rheology modifier response to both HEUR (urethane) and HASE (associative acrylic) thickeners (see Figures 1 and 2), allowing the formulator to make his own choice of thickening system.

In order to achieve optimum flow and levelling without compromising other properties, we recommend the use of non-ionic rheology modifiers such as Acrysol™ RM-5000 and Acrysol™ RM-8W. The utilisation of anionic rheology modifiers may compromise flow and re-coat properties. The use of Acrysol RM-5000 as sole rheology modifier will result in excellent flow properties, but when more in-can structure and/or film build is desired, the rheological profile may be modified by adding small (0.2 - 0.3% as calculated weight on total formulation) amounts of Acrysol™ RM-8W, Acrysol™ SCT-275 or Acrysol™ RM-12W.

These latter mentioned rheology modifiers also act as good “buffers” against (low-shear) viscosity drops upon addition of universal colourants and tinting pastes. Extra addition of Acrysol™ RM-5000 or Acrysol™ ASE-60ER (to minimise viscosity losses) is also possible, even when the main rheology modifier is anionic. Acrysol™ TT-935 or Acrysol™ RM-12W may also be used for the same purposes.
Primal™ AC-337 ER is less sensitive to decreases in low shear viscosity upon addition of universal colourants and tinting pastes than most other acrylic emulsions, which makes it easier to formulate the important base-paints for tinting systems.

Primal™ AC-337 ER in combination with Acrysol™ RM-12W provides the opportunity to formulate “thixotropic like” coatings, enabling the paint chemist to formulate translucent wood stains with non drip properties.

Dispersants

Orotan™ 1124 was found to give the best gloss without leading to any problems with syneresis, and is therefore the recommended dispersant in gloss and semi-gloss formulations based on Primal™ AC-337 ER. In other types of formulations, the versatile and effective dispersant Orotan™ 731A ER may be used as well. Orotan™ 681 does result in a high gloss level when formulating with HEUR rheology modifiers such as Acrysol™ RM-5000, and/or Acrysol™ RM-8W, but some syneresis upon ageing of the paint might occur. In all our suggested starting point formulations, care has been taken to avoid the use of APEO containing surfactants.

Coalescents

A water immiscible coalescent like Texanol at a level of 8% on binder solids is highly recommended, ensuring good film formation, acceptable block resistance and excellent exterior durability. Water miscible coalescents with faster evaporation rates are not suitable to improve early block resistance with Primal™ AC-337 ER.

Cosolvents

We recommend only low levels of cosolvents like propylene glycol in the formulations, because this is sufficient to provide good flow and open-time.

Pigments

Our recommended pigmentation for white paints is Tioxide RHD-2, but good gloss levels have also been achieved with Tiona-5353 from Millenium.
When formulating translucent stains, we recommend the addition of pre-dispersed transparent Iron Oxide pastes to give the required shade.

Adjustments of pH

Our starting point formulations have been adjusted with ammonia to give a pH level of 8.5-9.0 in order to give a good paint stability on storage.

Hydroxides may possibly be used as well, but a careful check of water resistance properties is then highly recommended.

Defoamers

Our preference has been some of the APEO free Tego® Foamex defoamers, such as Tego® Foamex 805 and Tego® Foamex 825. These also have the advantage of not detracting from gloss levels.

Biocides

As in-can preservative Kathon™ LXE is recommended. To avoid flocculation problems, Kathon™ LXE should be added to the grind before the pigments and extenders.

For the film protection of exterior coatings we recommend the utilisation of a biocide like Kathon™ 893.

Extenders and Ropaque Opaque Polymer

Micro Mica in combination with Ropaque opaque polymer has proven to have a very positive balance in terms of (low) moisture up-take and (high) water vapour permeability, which contributes to the good protection of exterior wooden constructions that Primal™ AC-337 ER provides.

The APEO free Ropaque™ Ultra E has been the preferred choice in our starting point formulations.

RHEOLOGY MODIFIER RESPONSE

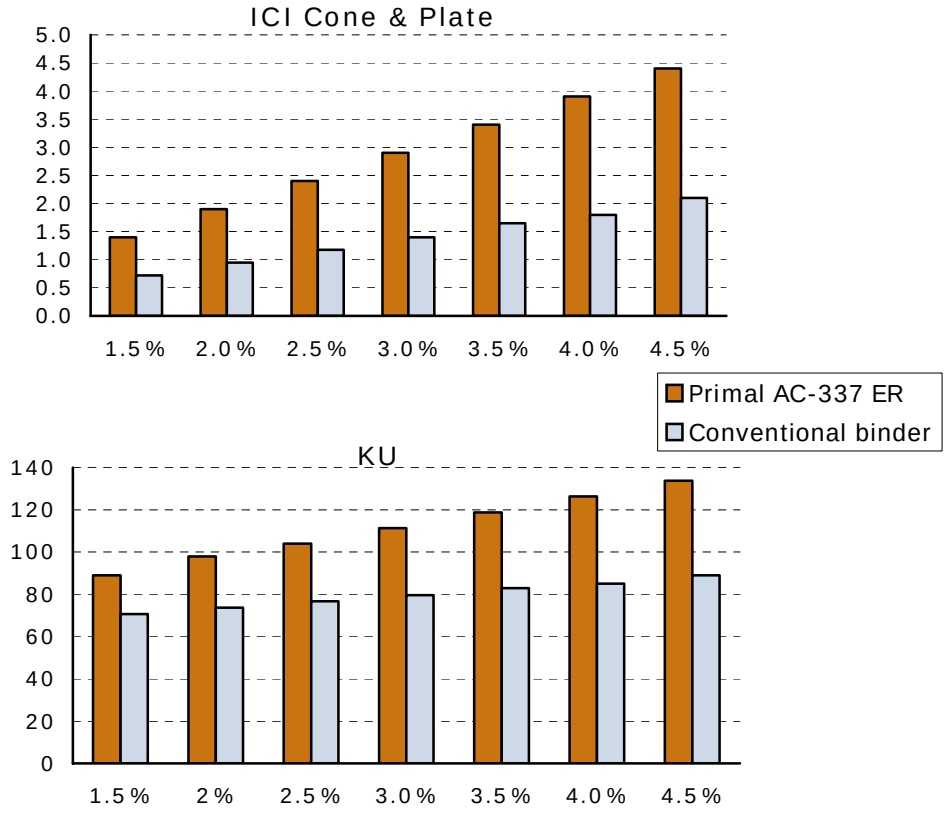

Figure 1: Acrysol™ RM-5000 Concentration (Weight / Total Formulation)

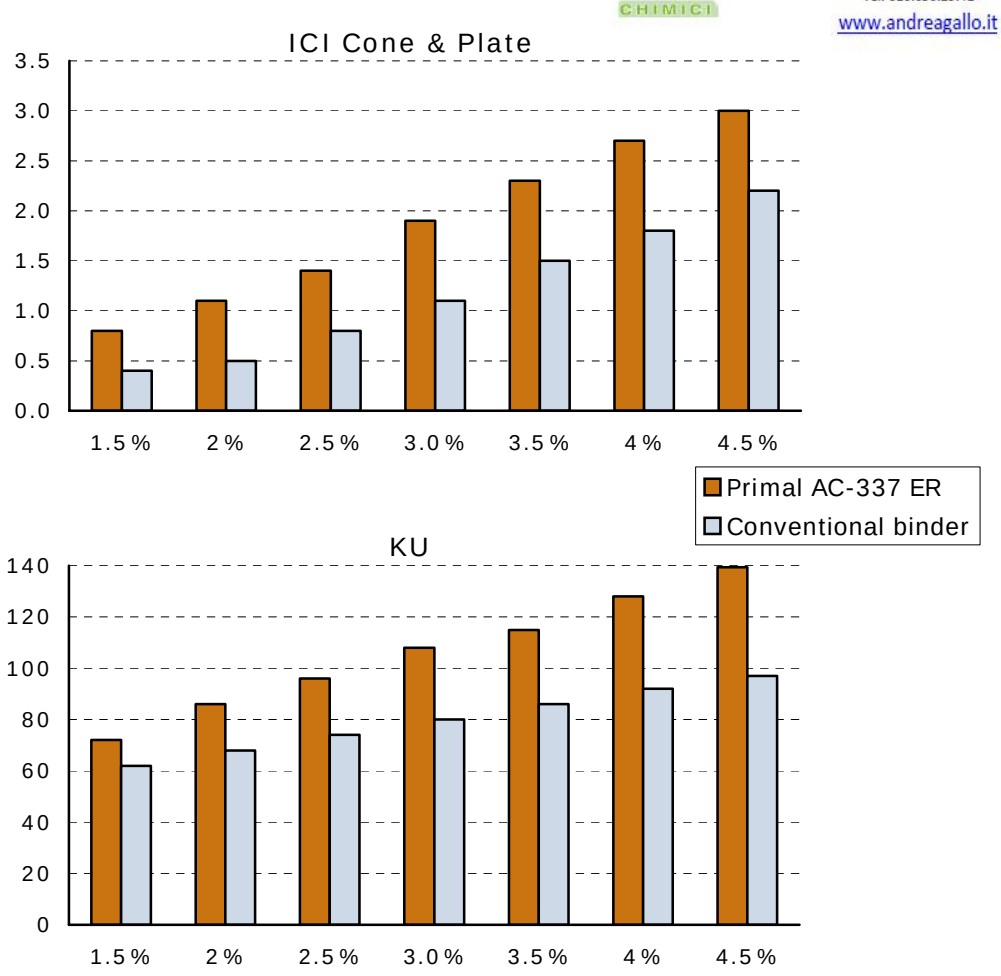

Figure 2: Acrysol™ RM-55 Concentration (Weight / Total Formulation)

Starting Point Formulation based on Primal™ AC-337 ER

Ref: 337-00-01

How to do?

Paint Features

Material Name	Kilograms	Liters
Primal™ AC-337 ER	484.0	459.6
Tego® Foamex 825 [1]	2.0	2.0
Water	380.0	380.0
Propylene Glycol	50.0	48.3
Texanol [2]	17.8	18.7
Aqueous Ammonia (28%)	1.0	1.1
Acrysol™ RM-5000	30.0	28.8
Acrysol™ RM-12W	8.0	7.7
Water	27.2	27.2
Totals	1,000.0	973.4

Paint Properties

Pigment Volume Concentration :	0.0%
Volume Solids :	20.7%
Weight Solids :	22.8%
Density :	1.03
pH :	8.5-9.0
Syneresis :	none
Dispersant :	0.0%
Coalescent :	8.1%
VOC (g/L) :	51.4
Viscosities	
Krebs Stormer (KU) :	70-80
ICI (Poise) :	0.3-0.7

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany

[2] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER

Ref: 337-00-02

How to do?

Paint Features

Material Name	Kilograms	Liters
Primal™ AC-337 ER	484.0	459.6
Tego® Foamex 825 [1]	2.0	2.0
Water	360.0	360.0
Propylene Glycol	50.0	48.3
Texanol [2]	17.8	18.7
Aqueous Ammonia (28%)	1.0	1.1
Acrysol™ RM-5000	37.0	35.5
Acrysol™ SCT-275	14.0	13.6
Water	34.2	34.2
Totals	1,000.0	973.0

Paint Properties

Pigment Volume Concentration :	0.0%
Volume Solids :	20.9%
Weight Solids :	23.0%
Density :	1.03
pH :	8.5-9.0
Syneresis :	none
Dispersant :	0.0%
Coalescent :	8.1%
VOC (g/L) :	54.4
Viscosities	
Krebs Stormer (KU) :	70-80
ICI (Poise) :	0.8-1.2

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany

[2] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER

Ref: 337-00-03

How to do?

Paint Features

Material Name	Kilograms	Liters
Primal™ AC-337 ER	245.0	232.6
Tego® Foamex 825 [1]	0.2	0.2
Water	300.0	300.0
Texanol [2]	9.0	9.5
Aqueous Ammonia (28%)	1.0	1.1
Water	380.0	380.0
Acrysol™ RM-5000	14.0	13.4
Acrysol™ RM-12W	28.0	26.9
Water	22.8	22.8
Totals	1,000.0	986.5

Paint Properties

Pigment Volume Concentration :	0.0%
Volume Solids :	10.7%
Weight Solids :	11.9%
Density :	1.01
pH :	8.5-9.0
Syneresis :	none
Dispersant :	0.0%
Coalescent :	8.1%
VOC (g/L) :	0.0
Viscosities	
Krebs Stormer (KU) :	50-60
ICI (Poise) :	0.1-0.3
Brookfield (spindle 2 / 30 RPM) (mPa.s) :	16500-20500
Brookfield (spindle 2 / 6 RPM) (mPa.s) :	55000-66000

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany

[2] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER

Ref: 337-00-04

How to do?

Paint Features

Material Name	Kilograms	Liters
Primal™ AC-337 ER	245.0	232.6
Tego® Foamex 825 [1]	0.2	0.2
Water	300.0	300.0
Texanol [2]	9.0	9.5
Aqueous Ammonia (28%)	1.0	1.1
Water	380.0	380.0
Acrysol™ RM-5000	17.0	16.3
Acrysol™ SCT-275	22.0	21.4
Water	25.8	25.8
Totals	1,000.0	986.9

Paint Properties

Pigment Volume Concentration :	0.0%
Volume Solids :	10.6%
Weight Solids :	11.9%
Density :	1.01
pH :	8.-5-9.0
Syneresis :	none
Dispersant :	0.0%
Coalescent :	8.1%
VOC (g/L) :	4.6
Viscosities	
Krebs Stormer (KU) :	53-63
ICI (Poise) :	0.1-0.3
Brookfield (spindle 2 / 60 RPM) (mPa.s) :	6400-7800
Brookfield (spindle 2 / 6 RPM) (mPa.s) :	8500-10500

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany

[2] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 18%)

Ref: 337-18-01

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	40.0	40.0	
Propylene Glycol	35.0	33.8	
Orotan™ 1124	4.0	3.4	
Tego® Foamex 805 [1]	4.0	4.0	
Tioxide R-HD2 [2]	200.0	48.8	17.6% PVC
Grind Sub-total	283.0	129.9	17.6% PVC
Premix			
Water	30.0	30.0	
Texanol [3]	20.5	21.6	
Premix Sub-total	50.5	51.6	
LetDown			
Primal™ AC-337 ER	565.0	536.5	
Kathon™ LXE	1.5	1.5	
Aqueous Ammonia (28%)	2.0	2.2	
Acrysol™ RM-5000	16.0	15.4	
Water	82.0	82.0	
Totals	**1,000.0**	**819.0**	**17.6% PVC**

Paint Properties

Pigment Volume Concentration :	17.6%
Volume Solids :	34.4%
Weight Solids :	46.3%
Density :	1.22
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.0%
Coalescent :	8.0%
VOC (g/L) :	42.7

Viscosities

Krebs Stormer (KU) :	92-102
ICI (Poise) :	1.8-2.0

Film Properties

Gloss

Gloss 20° :	58-60
Gloss 60° :	78-80

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany

[2] Hunstman Tioxide, London, UK

[3] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 18%)

Ref: 337-18-02

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	40.0	40.0	
Propylene Glycol	35.0	33.8	
Orotan™ 1124	4.0	3.4	
Tego® Foamex 805 [1]	4.0	4.0	
Tioxide R-HD2 [2]	200.0	48.8	17.6% PVC
Grind Sub-total	283.0	129.9	17.6% PVC
Premix			
Water	30.0	30.0	
Texanol [3]	20.5	21.6	
Premix Sub-total	50.5	51.6	
LetDown			
Primal™ AC-337 ER	565.0	536.5	
Premix			
Aqueous Ammonia (28%)	7.0	7.8	
Acrysol™ RM-55	24.0	22.6	
Water	30.0	30.0	
Premix Sub-total	61.0	60.4	
Water	37.0	37.0	
Triton™ GR-7M [4]	2.0	1.9	
Kathon™ LXE	1.5	1.5	
Totals	**1,000.0**	**818.8**	**17.6% PVC**

Paint Properties

Pigment Volume Concentration :	17.6%
Volume Solids :	35.0%
Weight Solids :	46.9%
Density :	1.22
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.0%
Coalescent :	8.0%
VOC (g/L) :	43.7
Viscosities	
Krebs Stormer (KU) :	95-105
ICI (Poise) :	1.8-2.2

Film Properties

Gloss

Gloss 20° :	58-60
Gloss 60° :	78-80

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Eastman Chemicals (UK) Ltd, UK
[4] Dow Chemical Co ltd, West Drayton, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 30%)

Ref: 337-30-01

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	50.0	50.0	
Propylene Glycol	25.0	24.1	
Orotan™ 1124	5.0	4.2	
Tego® Foamex 805 [1]	4.0	4.0	
Aqueous Ammonia (28%)	1.0	1.1	
Tioxide R-HD2 [2]	180.0	43.9	15.1% PVC
Micro Mica W1 - 1;2 µ [3]	50.0	17.7	6.1% PVC
Grind Sub-total	315.0	145.0	21.2% PVC
Premix			
Water	30.0	30.0	
Texanol [4]	18.4	19.4	
Premix Sub-total	48.4	49.4	
LetDown			
Primal™ AC-337 ER	505.0	479.5	
Ropaque™ Ultra E	48.7	47.5	8.5% PVC
Acrysol™ RM-5000	17.5	16.8	
Triton™ GR-7M [5]	2.0	1.9	
Water	61.9	61.9	
Kathon™ LXE	1.5	1.5	
Totals	**1,000.0**	**803.5**	**29.7% PVC**

Paint Properties

Pigment Volume Concentration :	29.7%
Volume Solids :	36.9%
Weight Solids :	48.2%
Density :	1.24
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.1%
Coalescent :	7.5%
VOC (g/L) :	32.1
Viscosities	
Krebs Stormer (KU) :	110-120
ICI (Poise) :	1.7-2.1

Film Properties

Gloss

Gloss 20° :	6-8
Gloss 60° :	33-35

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Norvegian Talc, Matlock, UK
[4] Eastman Chemicals (UK) Ltd, UK
[5] Dow Chemical Co ltd, West Drayton, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 31%)

Ref: 337-31-01

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	50.0	50.0	
Propylene Glycol	25.0	24.1	
Orotan™ 1124	5.0	4.2	
Tego® Foamex 805 [1]	4.0	4.0	
Aqueous Ammonia (28%)	1.0	1.1	
Tioxide R-HD2 [2]	180.0	43.9	15.3% PVC
Micro Mica W1 - 1;2 µ [3]	60.0	21.3	7.4% PVC
Grind Sub-total	325.0	148.6	22.8% PVC
Premix			
Water	30.0	30.0	
Texanol [4]	17.8	18.7	
Premix Sub-total	47.8	48.7	
LetDown			
Primal™ AC-337 ER	490.0	465.3	
Ropaque™ Ultra E	45.7	44.6	8.1% PVC
Premix			
Acrysol™ RM-55	27.0	25.5	
Water	22.0	22.0	
Aqueous Ammonia (28%)	5.0	5.6	
Premix Sub-total	54.0	53.0	
Triton™ GR-7M [5]	2.0	1.9	
Water	34.0	34.0	
Kathon™ LXE	1.5	1.5	
Totals	**1,000.0**	**797.6**	**30.9% PVC**

Paint Properties

Pigment Volume Concentration :	30.9%
Volume Solids :	37.2%
Weight Solids :	49.0%
Density :	1.25
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.0%
Coalescent :	7.5%
VOC (g/L) :	32.3
Viscosities	
Krebs Stormer (KU) :	105-115
ICI (Poise) :	1.4-1.8

Film Properties

Gloss

Gloss 20° :	8-10
Gloss 60° :	38-40

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Norvegian Talc, Matlock, UK
[4] Eastman Chemicals (UK) Ltd, UK
[5] Dow Chemical Co ltd, West Drayton, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 35%)

Ref: 337-35-01

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	80.0	80.0	
Propylene Glycol	25.0	24.1	
Orotan™ 731A ER	11.2	10.1	
Tego® Foamex 805 [1]	2.0	2.0	
Aqueous Ammonia (28%)	1.0	1.1	
Tioxide TR92 [2]	180.0	45.0	15.1% PVC
Micro Mica W1 - 1;2 µ [3]	100.0	35.5	11.9% PVC
Grind Sub-total	399.2	197.8	27.0% PVC
Premix			
Water	20.0	20.0	
Tego® Foamex 825 [1]	3.0	3.0	
Texanol [4]	17.5	18.4	
Premix Sub-total	40.5	41.4	
LetDown			
Primal™ AC-337 ER	480.0	455.8	
Ropaque™ Ultra E	47.0	45.9	8.0% PVC
Acrysol™ RM-5000	11.0	10.6	
Water	20.5	20.5	
Kathon™ 893	1.8	1.7	
Totals	**1,000.0**	**773.7**	**35.0% PVC**

Paint Properties

Pigment Volume Concentration :	35.0%
Volume Solids :	39.4%
Weight Solids :	52.0%
Density :	1.29
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.0%
Coalescent :	7.5%
VOC (g/L) :	32.4
Viscosities	
Krebs Stormer (KU) :	90-100
ICI (Poise) :	1.1-1.5
Brookfield (spindle 4 / 60 RPM) (mPa.s) :	1800-2200
Brookfield (spindle 4 / 6 RPM) (mPa.s) :	3600-4400

Film Properties

Gloss

Gloss 60° :	13-15
Sheen 85° :	33-35

Contrast ratio

CR 100µ:	94.9%
CR 200µ:	98.7%

Block resistance 100µ (N/cm²)

1 day :	1.5
	good
7 days :	0.4
	excellent

König Hardness (100µ wet film thickness)

1 day :	26
7 days :	46

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Norvegian Talc, Matlock, UK
[4] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 35%)

Ref: 337-35-02

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	120.0	120.0	
Propylene Glycol	25.0	24.1	
Orotan™ 731A ER	13.2	12.0	
Tego® Foamex 805 [1]	2.0	2.0	
Aqueous Ammonia (28%)	1.0	1.1	
Bayferrox® 130M RIO [2]	120.0	24.0	8.4% PVC
Micro Mica W1 - 1;2 µ [3]	150.0	53.2	18.6% PVC
Grind Sub-total	431.2	236.4	26.9% PVC
Premix			
Water	10.0	10.0	
Tego® Foamex 825 [1]	3.0	3.0	
Texanol [4]	17.0	17.9	
Premix Sub-total	30.0	30.9	
LetDown			
Primal™ AC-337 ER	462.0	438.7	
Ropaque™ Ultra E	45.0	43.9	8.0% PVC
Acrysol™ RM-5000	13.0	12.5	
Water	17.0	17.0	
Kathon™ 893	1.8	1.7	
Totals	**1,000.0**	**781.1**	**34.9% PVC**

Paint Properties

Pigment Volume Concentration :	34.9%
Volume Solids :	37.6%
Weight Solids :	50.2%
Density :	1.28
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.2%
Coalescent :	7.6%
VOC (g/L) :	32.1
Viscosities	
Krebs Stormer (KU) :	90-100
ICI (Poise) :	1.4-1.8

Film Properties

Gloss

Gloss 60° :	3-5
Sheen 85° :	8-10

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Bayer AG, Leverkusen, Germany
[4] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 35%)

Ref: 337-35-03

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	80.0	80.0	
Propylene Glycol	25.0	24.1	
Orotan™ 731A ER	11.2	10.1	
BYK®-024[1]	3.0	3.0	
Aqueous Ammonia (28%)	1.0	1.1	
Ti-Pure® R-706 [2]	180.0	45.0	15.1% PVC
Micro Mica W1 - 1;2 µ [3]	100.0	35.5	11.9% PVC
Grind Sub-total	400.2	198.8	27.0% PVC
Premix			
Water	17.0	17.0	
Texanol[4]	17.5	18.4	
BYK®-024[1]	2.0	2.0	
Acrysol™ RM-5000	11.0	10.6	
Premix Sub-total	47.5	48.0	
LetDown			
Primal™ AC-337 ER	480.0	455.8	
Ropaque™ Ultra E	47.0	45.9	8.0% PVC
Acrysol™ RM-5000	13.5	13.0	
Water	11.8	11.8	
Totals	1,000.0	773.2	35.0% PVC

Paint Properties

Pigment Volume Concentration :	35.0%
Volume Solids :	39.9%
Weight Solids :	52.5%
Density :	1.29
pH :	8.3-8.8
Syneresis :	none
Dispersant :	1.0%
Coalescent :	7.5%
VOC (g/L) :	32.7
Viscosities	
Krebs Stormer (KU) :	115-125
ICI (Poise) :	2.6-3.0
Brookfield (spindle 4 / 60 RPM) (mPa.s) :	4000-5000
Brookfield (spindle 4 / 6 RPM) (mPa.s) :	10000-12000

Film Properties

Gloss	
Gloss 20° :	2-4
Gloss 60° :	15-17
Contrast ratio 150µ	
CR :	98.3%
Wet Scrub resistance :	
Loss of thickness (at 200 scrubs) :	1.4 µm
Block resistance 100µ (N/cm²)	
1 day :	3.3 average
7 days :	1.0 excellent
Hardness (100µ wet film thickness)	
7 days :	43
14 days :	49

Suppliers

[1] BYK Chemie GmbH, Wesel, Germany

[2] DuPont de Nemours International SA, Geneva, Switzerland

[3] Norvegian Talc, Matlock, UK

[4] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 36%)

Ref: 337-36-01

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	90.0	90.0	
Propylene Glycol	25.0	24.1	
Orotan™ 731A ER	11.2	10.1	
Tego® Foamex 805 [1]	2.0	2.0	
Aqueous Ammonia (28%)	1.0	1.1	
Tioxide TR92 [2]	180.0	45.0	15.5% PVC
Micro Mica W1 - 1;2 µ [3]	100.0	35.5	12.2% PVC
Grind Sub-total	409.2	207.8	27.7% PVC
Premix			
Water	15.0	15.0	
Tego® Foamex 825 [1]	3.0	3.0	
Texanol [4]	17.5	18.4	
Premix Sub-total	35.5	36.4	
LetDown			
Primal™ AC-337 ER	460.0	436.8	
Ropaque™ Ultra E	47.0	45.9	8.2% PVC
Premix			
Acrysol™ RM-55	16.0	15.1	
Water	20.0	20.0	
Aqueous Ammonia (28%)	4.0	4.4	
Premix Sub-total	40.0	39.5	
Water	6.5	6.5	
Kathon™ 893	1.8	1.7	
Totals	1,000.0	774.7	36.0% PVC

Paint Properties

Pigment Volume Concentration :	36.0%
Volume Solids :	38.6%
Weight Solids :	51.4%
Density :	1.29
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.0%
Coalescent :	7.8%
VOC (g/L) :	32.4

Viscosities

Krebs Stormer (KU) :	90-95
ICI (Poise) :	1.3-1.7

Film Properties

Gloss

Gloss 60° :	13-15
Sheen 85° :	33-35

Block resistance 100µ (N/cm²)

1 day :	1.3
	excellent
7 days :	0.4
	good

König Hardness (100µ wet film thickness)

1 day :	28
7 days :	50

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Norvegian Talc, Matlock, UK
[4] Eastman Chemicals (UK) Ltd, UK

Starting Point Formulation based on Primal™ AC-337 ER (PVC 36%)

Ref: 337-36-02

How to do?

Paint Features

Material Name	Kilograms	Liters	Level
Grind			
Water	120.0	120.0	
Propylene Glycol	25.0	24.1	
Orotan™ 731A ER	13.2	12.0	
Tego® Foamex 805 [1]	2.0	2.0	
Aqueous Ammonia (28%)	1.0	1.1	
Bayferrox® 130M RIO [2]	120.0	24.0	8.8% PVC
Micro Mica W1 - 1;2 µ [3]	150.0	53.2	19.5% PVC
Grind Sub-total	431.2	236.4	28.3% PVC
Premix			
Water	10.0	10.0	
Tego® Foamex 825 [1]	3.0	3.0	
Texanol [4]	15.8	16.6	
Premix Sub-total	28.8	29.6	
LetDown			
Primal™ AC-337 ER	430.0	408.3	
Ropaque™ Ultra E	43.0	42.0	8.0% PVC
Premix			
Acrysol™ RM-55	20.0	18.9	
Water	25.0	25.0	
Aqueous Ammonia (28%)	5.0	5.6	
Premix Sub-total	50.0	49.4	
Water	15.2	15.2	
Kathon™ 893	1.8	1.7	
Totals	**1,000.0**	**782.6**	**36.3% PVC**

Paint Properties

Pigment Volume Concentration :	36.3%
Volume Solids :	36.1%
Weight Solids :	49.1%
Density :	1.28
pH :	8.5-9.0
Syneresis :	none
Dispersant :	1.2%
Coalescent :	7.6%
VOC (g/L) :	32.0
Viscosities	
Krebs Stormer (KU) :	90-100
ICI (Poise) :	1.4-1.8

Film Properties

Gloss

Gloss 60° :	3-5
Sheen 85° :	8-10

Suppliers

[1] Tego Chemie Service GmbH, Essen, Germany
[2] Hunstman Tioxide, London, UK
[3] Bayer AG, Leverkusen, Germany
[4] Eastman Chemicals (UK) Ltd, UK

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