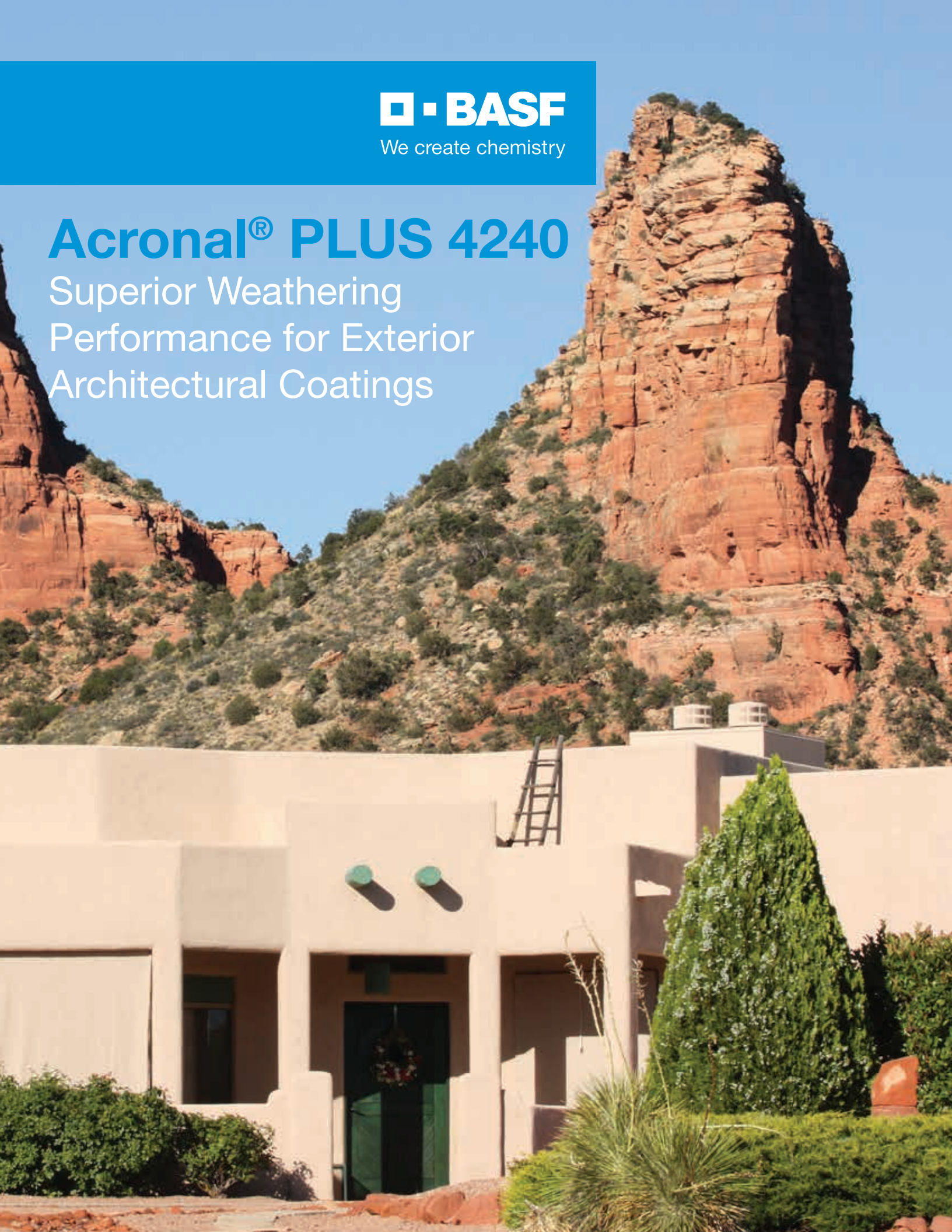




We create chemistry

Acronal[®] PLUS 4240

Superior Weathering
Performance for Exterior
Architectural Coatings



Acronal[®] PLUS 4240

Superior weathering performance while meeting low-VOC requirements

Acronal PLUS 4240 is an all acrylic resin developed for exterior flat to satin paints. Optimized for high performance at low-VOCs (50 g/l), this product delivers excellent dirt-pick up resistance and dry-film resilience (high scrubs). Acronal PLUS 4240 is a high-solids latex that can be formulated with or without zinc oxide.

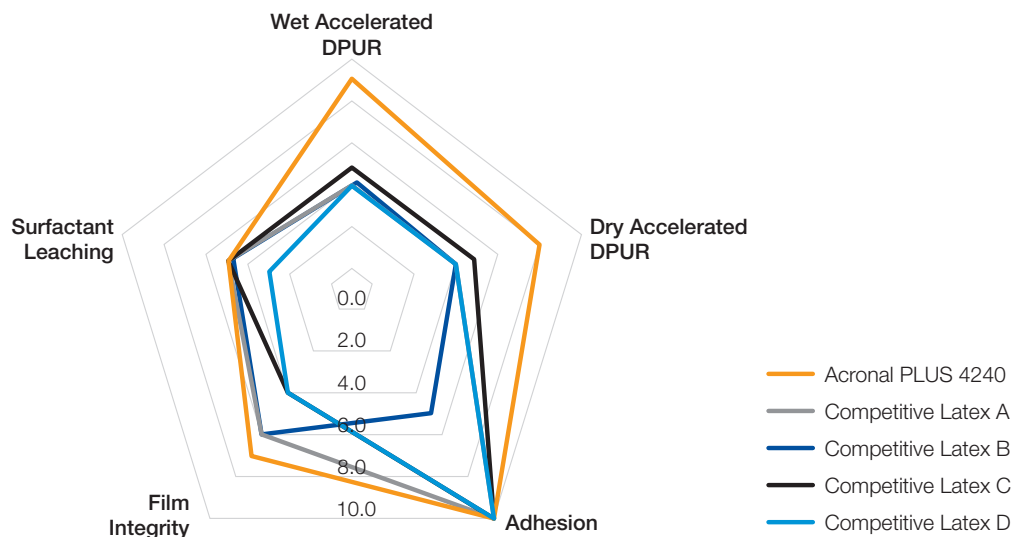
Features

- Excellent dirt pick-up resistance
- Durable dry-film performance (high scrubs)
- Low-VOC capable (50 g/l)
- APEO-free
- Low odor

Properties

Solids content, weight %	52.0 – 54.0
Solids content, volume %	49.0 – 51.0
VOC content, weight %	< 0.2
VOC content, volume %	< 0.2
Brookfield Viscosity, cps	< 1000
Particle size, nm	125 approx.

Performance of Acronal PLUS 4240 in exterior flat paint formulation



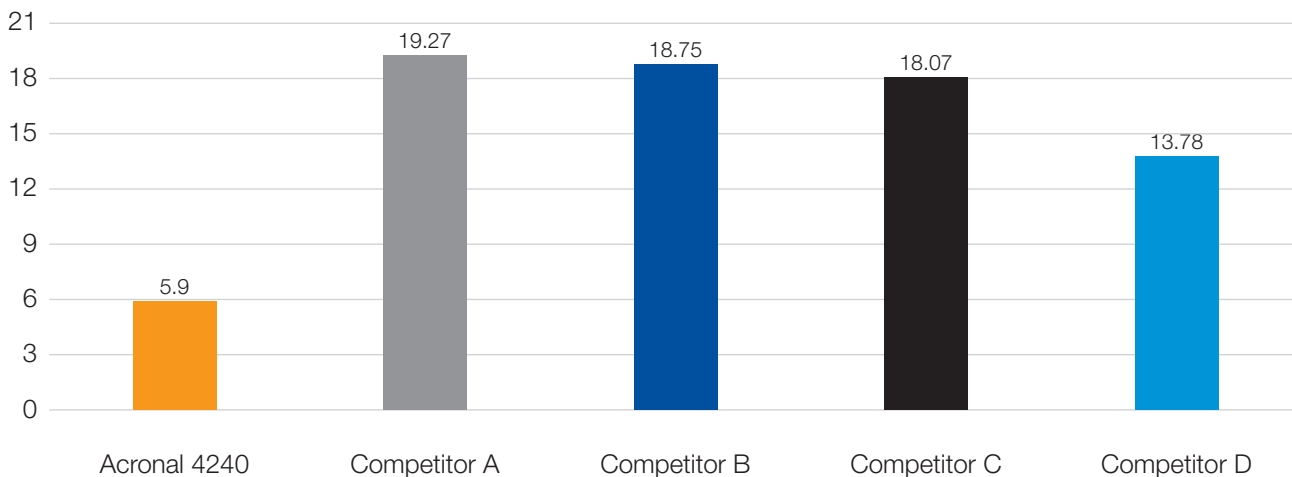
	Acronal PLUS 4240	Competitive Latex A	Competitive Latex B	Competitive Latex C	Competitive Latex D
Wet accelerated DPUR	9	4	4	5	4
Dry accelerated DPUR	8	4	4	5	4
Adhesion	10	10	5	10	10
Film integrity	7	4	6	4	4
Surfactant leaching	5	3	5	5	5



Acronal® PLUS 4240

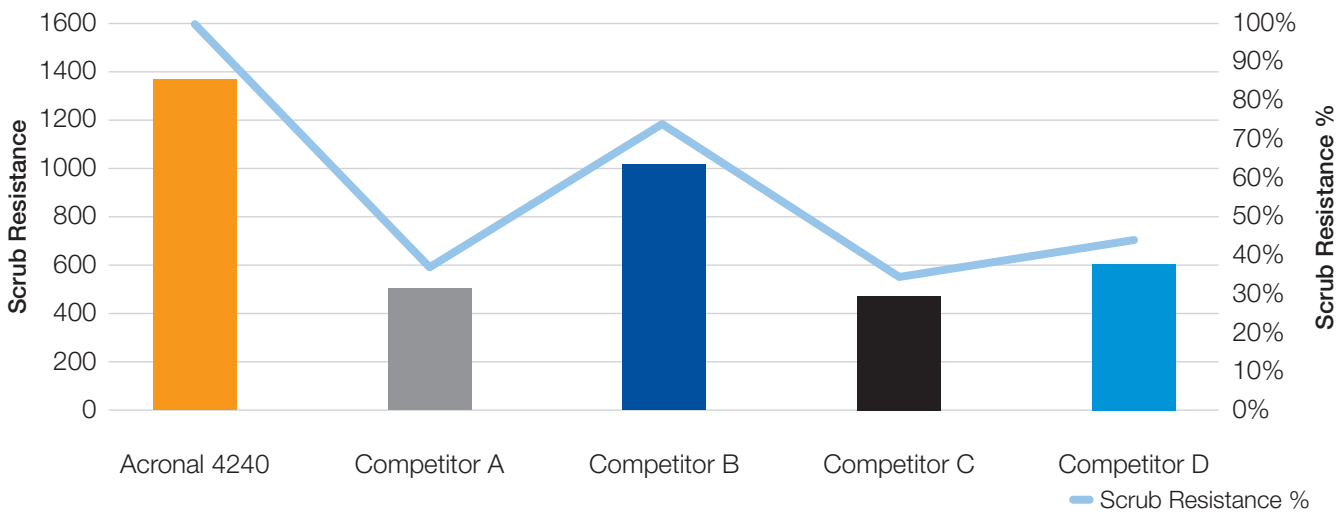
Dirt Pick-up Resistance

Acronal PLUS 4240 has been engineered to deliver excellent dirt pick-up resistance. Data from prolonged exposure and accelerated DPUR testing confirms that Acronal PLUS 4240 consistently outperforms relative to competitive products.



Film integrity

Acronal PLUS 4240 stands out for its durable dry-film performance, as evidenced by its capacity to deliver 35% more scrubs than the nearest competitive product. Its superior ability to avoid degradation of the dried paint film, provides Acronal PLUS 4240 with improved resistance to the elements.





Acronal[®] PLUS 4240

Formulation Guidelines

Dispersants

The Dispex[®] line of dispersants are recommended for this product. Hydrophobic dispersants Dispex CX 4320 and Dispex CX 4325 have proven effective, with a good balance of tint strength and performance properties. Tamol[™] 165 has also been used effectively.

Defoamers

The FoamStar[®] line of defoamers can be used for Acronal PLUS 4240. Specifically, FoamStar ST 2420 is a well-rounded option for formulating with this dispersion.

Rheology Modifiers

HEUR, HMPE, HASE, and cellulosic rheology modifiers are all compatible with Acronal PLUS 4240. Rheovis[®] rheology modifiers have resulted in great performance properties at low VOC. Use of Rheovis PE 1331 allows for the formulator to meet required high-shear targets at flat through satin sheens while maintaining balanced low-shear contributions. KU range low-shear targets can be met with the addition of Rheovis PU 1191. Formulations have shown stable viscosities over time using the combination of these two rheology modifiers.

Coalescence

It is recommended for full coalescence, that 5% by weight on polymer solids be used of either low VOC Efka[®] PL 5651 NF or low VOC Loxanol[®] CA 5310.

Acronal[®] PLUS 4240

Suggested Formulations

Flat Formulation

raw materials	lbs	gallons
Grind		
Water	150.0	18.01
Natrosol ¹ Plus 330	3.0	0.28
Ammonium Hydroxide	1.0	0.12
Dispex ² CX 4320	10.0	0.97
FoamStar ² ST 2420	2.0	0.29
Proxel ³ GXL	2.0	0.21
Ethylene Glycol	9.0	0.97
Minex ⁴ 4	22.5	10.34
Attagel ² 50	2.0	0.10
Grind for 15-20 minutes, then add Letdown		
Letdown		
Water	69.7	8.37
Ti-Pure ⁶ R 746	300.0	15.45
Texanol ⁵	8.0	1.01
FoamStar ² ST 2420	2.0	0.29
Efka ² FA 4620	2.0	0.19
Acronal ² PLUS 4240	360.0	40.69
Polyphase ⁷ 678	6.0	0.62
Rheovis ² PE 1331	5.0	0.58
Rheovis ² PU 1191	13.0	1.51
Total	1169.7	100
Viscosity (KU)	95-105	
Viscosity (ICI)	1.0-1.5	
Weight Solids %	57.8	
Volume Solids %	40.5	
PVC %	43.9	
VOC g/L	50	

Flat Formulation with Zinc Oxide for MPI #10

raw materials	lbs	gallons
Grind		
Water	150	18.01
Proxel ³ BD 20	3	0.33
Ethylene Glycol	7	0.76
Natrosol ¹ Plus 330	2	0.19
Ammonium Hydroxide	2	0.24
Dispex ² CX 4325	10	1
FoamStar ² ST 2420	2	0.26
Minex ⁴ 4	200	9.2
Kadox ³ 915	25	0.53
Attagel ² 50	2	0.1
Grind for 15-20 minutes, then add Letdown		
Letdown		
Water	61.6	7.39
Ti-Pure ⁶ R 746	300	15.45
Texanol ⁵	10	1.26
FoamStar ² ST 2420	2	0.29
Acronal ² PLUS 4240	360	40.69
Polyphase ⁷ 678	6	0.62
Rheovis ² PU 1191	6.5	0.76
Rheovis ² PE 1331	25	2.91
Total	1180.2	100
Viscosity (KU)	90-95	
Viscosity (ICI)	1.5-2.0	
Weight Solids %	57.3	
Volume Solids %	39.6	
PVC %	43	
VOC g/L	49	

Acronal[®] PLUS 4240

Suggested Formulations

Satin Formulation

raw materials	lbs	gallons
Grind		
Water	100	12
Proxel ³ GXL	2	0.21
Ethylene Glycol	8	0.86
Ammonium Hydroxide	1	0.12
Dispex ² CX 4240	6	0.64
FoamStar ² ST 2420	2	0.29
Natrosol ¹ 330 Plus	1	0.09
Minex ⁴ 7	100	4.61
Attigel ² 50	2	0.1
Grind for 15-20 minutes, then add Letdown		
Letdown		
Water	108.6	13.04
FoamStar ² ST 2420	2	0.29
Texanol ⁵	8	1.01
Ti-Pure ⁶ R 746	330	16.99
Acronal ² PLUS 4240	420	47.48
Rheovis ² PE 1331	20	2.33
Rheovis ² PU 1191	8	0.93
Polyphase ⁷ 678	6	0.62
Total	1094.6	100
Viscosity (KU)	90-95	
Viscosity (ICI)	1.5-2.0	
Gloss 85°	40-45	
Weight Solids %	53.2	
Volume Solids %	38.3	
PVC %	31	
VOC g/L	50	



Acronal[®] PLUS 4240

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.

Material Safety Data Sheet

Please refer to the most current version of the Material Safety Data Sheet that can be found on-line at www.basf.us/sds

Storage

Acronal PLUS 4240 should be stored in accordance with the “Handling and Storage of polymer dispersions” brochure. Technical information regarding the storage of BASF polymer dispersion products is available upon request. Product should not be allowed to freeze.

About the Dispersions & Resins Business

The Dispersions & Resins business of BASF develops, produces and markets a range of high-quality resins, additives, colorants and polymer dispersions worldwide. These raw materials are used in formulations for coatings and paints, printing and packaging products, construction chemicals, adhesives, fiberbondings, nonwovens, and paper manufacturing. With a comprehensive product portfolio and extensive knowledge of the industries we serve, our customers benefit from innovative and sustainable solutions to help them advance their formulations through chemistry. For further information about the Dispersions & Resins business in North America, please visit <http://www.basf.us/dpsolutions>

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