

# Quick-Trigger<sup>®</sup> 4333

**Chemical Nature**

**Aqueous dispersion additive for achieving early rain resistance with elastomeric roof coatings**

**Properties**

**Typical Properties**

Solids content	%	ca. 32
pH		ca. 11
Viscosity at 73 °F (Brookfield RV, Spindle #3, at 50 rpm)	mPa s	ca. 40

**Other properties**

Density	lbs./gal g/cm <sup>3</sup>	ca. 8.5 ca. 1.02
Dispersion type		Anionic
Sensitivity to freezing	°F °C	below 32 below 0

\* These typical values should not be interpreted as specifications.

**Applications**

**Field of application**

Conventional elastomeric acrylic roof coatings cure slowly, particularly at lower temperatures (< 50°F) and thus, are prone to wash-offs from rainfall occurring unexpectedly soon after application. Wash-offs from rainfall are not only unsightly and expensive to repair, but also carry the risk of contaminating groundwater and have the potential to harm vegetation. Since majority of jobs involve the application of two separate coats to achieve desired total dry film thickness; slow curing times can translate into lengthy job delays as the contractor must wait for the first coat to develop adequate foot traffic resistance before the second coat is applied. Together, effective early rain resistance and faster curing roof coatings can accelerate job completion and potentially diminish financial hardship to the contractor associated with wash-off repair rework.

Quick-Trigger 4333 is a unique additive recommended for use in white roof coating formulations comprising Quick-Trigger 4333 coating resins to modify coating properties, particularly under non-ideal conditions (low temperatures & high humidity) with the objective of enabling earlier season job starts, later season job ends, early rain resistance and potentially faster job completion. Coatings consisting of Quick-Trigger 4333 and select Acronal<sup>®</sup> roof coating resins may be used for sealing roof decks and the protection of underlying polyurethane insulation foam, rolled roofing felts or asphaltic substrates against the effects of weathering. Quick-Trigger 4333 provides the formulator with flexibility to convert standard roof coating formulations comprising Acronal resin into early rain-resistant formulations simply by incorporating small amounts of Quick-Trigger 4333. This approach allows the coating producer the logistical convenience of consolidating raw materials (i.e., only one resin storage tank needed) and offers the option for on-demand production of a range of roof coating products to achieve higher operational efficiency.

For areas where permanent water loading is anticipated or the roof slope is < 2°, roof coatings containing Acronal dispersions are not recommended.

**Processing**

Quick-Trigger 4333 is typically added to a coating formulation during the let-down phase of coating manufacture. ***In order to maintain optimal formulation stability during manufacture, precaution must be taken to ensure the pH of the formulation is adjusted to 10.5 or above with ammonia solution prior to Quick-Trigger 4333 addition. Best early rain resistance, and improved storage stability is achieved when the pH of the final formulation is adjusted to about 10.8 with ammonia solution.*** Excellent early rain resistance is achieved when Quick-Trigger 4333 is formulated in conjunction with, for example, Acronal NX 3250 M resin at a dosage rate of ca. 1.8 lbs Quick-Trigger 4333, per 100 lbs Acronal NX 3250 M. The use of Quick-Trigger 4333 fits with standard production practices employed in the manufacture of roof coatings.

**Formulation**

Attached is an ASTM D-6083 compliant, elastomeric roof coating formulation with excellent early rain resistance formulated with Quick-Trigger 4333 additive and Acronal NX 3250 M resin.

Customers must carry out their own internal tests and trials when developing and processing products based on Quick-Trigger 4333.

**Ingredients must be added in the order listed below & mixed for a smooth grind:**

<b>Pigment grind</b>	<b>lbs.</b>	<b>Gal.</b>	<b>Supplier</b>
Water	135	16.15	
Dispex® 4144 (35%) Dispersant	4.01	0.39	BASF
KTPP Dispersant	1.34	0.14	
Foamaster® MO NXZ Defoamer	1.81	0.25	BASF
Acticide MBS 2550 Microbiocide Preservative	2.00	0.23	6
Acticide MKW2 Fungicide / Algicide	5.18	0.56	6
Snowwhite 12 Calcium Carbonate	403	17.91	1
Ti-Pure R-960 Titanium Dioxide	67.0	2.06	2
Zoco 101 Zinc Oxide	45.1	0.97	3
<b>Total for pigment grind</b>	<b>664</b>	<b>38.66</b>	
<b>Letdown</b>			
Acronal 3250M Acrylic Polymer	450	52.28	BASF
Ammonia (pH Target = 10.85) "critical step"	31.9	4.35	
Quick Trigger 4333 DO NOT ADD BEFORE AMMONIA ADDITION	13.5	1.59	BASF
Foamaster MO NXZ Defoamer	1.81	0.25	BASF
Texanol Coalescent	6.68	0.84	4
Natrosol 250 MXR (mix w/PG) Thickener	3.41	0.68	5
Propylene Glycol (Mix w/250) Solvent	11.7	1.35	
<b>Total for Coating</b>	<b>1183</b>	<b>100.00</b>	

WPG	11.8
Weight Solids	65.8
Volume Solids	51.9
PVC	42.8
KU	105
pH	10.8

<sup>1</sup> OMYA Canada, Inc, Perth ONT
<sup>2</sup> E. I. du Pont de Nemours and Co., Wilmington DE
<sup>3</sup> Horsehead Corp, Monaca PA
<sup>4</sup> Eastman Chemical Co, Kingsport TN
<sup>5</sup> Ashland Inc, Covington KY
<sup>6</sup> Thor, Kent ENGLAND

## Manufacturing

Formulation ingredients must be added under constant agitation in the order listed in the recipe above. Following the addition of the Acticide MBS 2550 & MKW2, the pigment grind should be mixed at high speed for 15 - 30 minutes.

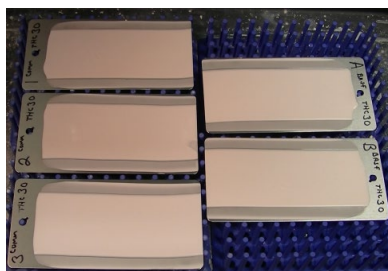
Quick-Trigger 4333 ***should not*** be added to the formulation prior to the **\*\*critical\*\*** ammonia pH adjustment step and moreover, should only be added if the pH of the formula is above 10.5. ***Failure to follow this step can result in a viscous material that can be difficult to process in the mixer, or in downstream storage tanks and packages.*** Formulation pH can be adjusted with ammonia solution to 10.8 for best early rain resistance and optimal package shelf life stability. Natrosol 250 MXR should be premixed with propylene glycol to ensure proper mixing in the letdown.

## Testing

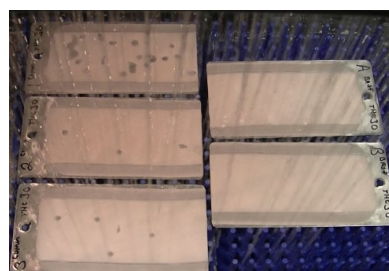
Elastomeric coating formulations comprising Quick-Trigger 4333 and Acronal NX 3250 M were prepared in accordance with the formulation shown above and tested for Early Rain Resistance in a simulated rainfall test for 10 minutes, as shown in the figures below.

Thickness of coating: 30 wet mils, Curing Conditions: 40°F, 90% R.H., 30 Minutes, Rainfall Rate: 2 gallons/minute, Water Pressure: 45 psi.

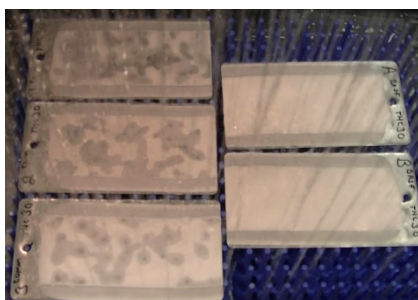
Start of test



After 2 minutes



After 10 minutes



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## 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 Quick-Trigger 4333.

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