



multiquímica®

TECHNICAL ARTICLE

SYNTHACRIL 9000: QUICK-DRYING WATER-BASED ROAD PAINTS



In this article we are going to refer to traffic paints that comply with the US federal specification, which in turn is based on several ASTM standards.

Among the most important properties that a water-based road paint must meet, we can highlight the following:

- Release to traffic in less than 20 minutes in a 10 wet mils application
- Resistance to early rain or Wash Off test after 10 minutes of applying the paint
- Excellent adhesion on concrete or asphalt roads
- Extraordinary resistance to abrasion. And how much do we say this, we mean 20,000, 30,000 40,000 cycles standard ASTM 2486 and with a drying of only minutes. So extraordinary is the abrasion resistance that Taber test is the norm.

For an acrylic resin to meet the above requirements, we are talking about a polymer with exceptional characteristics.

Without any doubt the market leader is by far Fastrack from DOW. And we must say Fastracks in the plural because there are several alternatives that DOW offers to this market, Fastrack 2706, 3427, HD21, XSR, R53 by the way, excellent products and with a long journey with this type of technologies MULTIQUIMICA offers Synthacril 9000 for this application. In order to meet the demanding requirements of the United States DOT (Department of Transit), we can infer that it is a polymers with very particular characteristics.

There are several ways in which paint forms film; coalescence is the most common but not the only one.

Synthacril 9000 is basically an unstable polymer that flocculates in a controlled manner once the pH drops below 10.

The success or failure of a good water-based acrylic traffic paint will depend fundamentally on the selection of the polymer. We can state then that the choice of polymer will be crucial for a good performance of an aqueous based road paint. However, the selection of the polymer is a necessary but not sufficient condition to guarantee optimal results and a correct formulation is also required.



Here you will find some frequents Q&A

What PVC should the paint have?

Optimal PVC is around 60 % with a solids by volume of 60-61 %. In other words, we are talking about a paint with a moderately high PVC but with extraordinary resistance to abrasion.

In this PVC and with a high content of solids, we do not have much water available and that is why the grinding is carried out using the polymer as a replacement for water, which means that the polymer must necessarily have a very good mechanical stability.

What type of fillers are the most recommended?

We recommend calcium carbonate with a low oil absorption of around 7-8, type Omyacarb 5 american grade. Low oil absorption quartz can also be used. Unfortunately many of our customers use fillers with higher oil absorption which is a real headache for optimal formulation and paint stability.

What critical factors should I consider when formulating a waterborne traffic paint with Synthacril 9000?

Basically there are 4 aspects:

1. Correct choice of resin. Synthacril 9000 is a very good alternative.
2. Fillers with low OA
3. A good dispersant agent (We recommends Multisperse 300)
4. The pH should not drop below 10 at any moment during the process

Can I adjust the pH with an amine so it doesn't smell like ammonia?

It is not possible to adjust the pH with DMAE, AMP 95 or Advantex or Vantex.

The drying time is very fast due to the flocculation and occurs due to the evaporation of ammonia lowering the pH and speeding the dry process.

Amines are not volatile enough to produce this short drying time.

Ammonia, being a gas, evaporates quickly, producing the controlled flocculation that we mentioned before.

During the manufacturing process there is also no need to over grind because it could cause faster evaporation of the ammonia. (Hegman 3 is enough.)

What happens if the pH drops below 10 during manufacturing?

This will be a costly mistake that you could avoid with a pH control.

You will have flocculated no useful paint. The cowless will be very hard to clean due to the water polymer resistance and the Paint will be extremely difficult to re process.

If you need further information or samples request, please do not hesitate to contact us



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