

# Eastman Optifilm™ enhancer 400

## Frequently asked questions

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### Emission evaluations

#### Q What makes Eastman Optifilm™ enhancer 400 different than conventional coalescing aids?<sup>1</sup>

With Eastman Optifilm™ enhancer 400, formulators can produce low to near zero-emission paints. Unlike conventional coalescents, this low-volatile coalescing aid will contribute very little to the emission profile of the paint. Therefore, reformulating with this drop-in replacement coalescent eliminates the need for extensive reformulating as it enables formulators to meet new and existing emission regulations for paints using their current traditional high T<sub>g</sub> resin systems.

#### Q Do you have independent data to show that Optifilm enhancer 400 is a truly low-emitting coalescing aid?

An independent, fully accredited laboratory measured emissions of Eastman Optifilm™ enhancer 400 from a matte and silk test paint. The ISO 16000 test method was followed with emission measurements collected after 3, 7, 21, and 28 days. The results were evaluated against the French Grenelle labeling scheme (DECREE No. 2011-321), German AgBB, French AFSSET, and the ISO 16000 guidelines. Emissions of Optifilm enhancer 400 could not be detected from the test paints using the aforementioned analytical methods.

<sup>1</sup>A coalescent which is added to the paint to temporarily reduce the MFFT. During the drying phase, the coalescent will evaporate out of the film and the MFFT will return to its original value.

#### Q Will Optifilm enhancer 400 conform with the proposed changes<sup>2</sup> to the Ecolabel?

As well as the existing in-can VOC restrictions, the new Ecolabel criterion imposes restrictions on the semivolatile organic compounds (SVOC) content of the paint.

Any substance which elutes between diethyl adipate (C<sub>10</sub>H<sub>18</sub>O<sub>4</sub>) and methyl palmitate (C<sub>17</sub>H<sub>34</sub>O<sub>2</sub>) will be classed as an SVOC. The proposed SVOC limits for interior matte walls and ceiling paints can be found in the following table.

Product description (with subcategory denotation according to Directive 2004/CE/42)	VOC limits (g/L including water)	SVOC limits (g/L including water)
Interior matte walls and ceilings (Gloss <25 @ 60°)	10	30 <sup>a</sup> /40 <sup>b</sup>

<sup>a</sup>Indoor white paints and varnishes

<sup>b</sup>Indoor tinted paints/outdoor paints and varnishes

Eastman Optifilm™ enhancer 400 will elute after methyl palmitate (C<sub>17</sub>H<sub>34</sub>O<sub>2</sub>) and thus will NOT be classed as an SVOC and will NOT contribute to the SVOC content of the paint.

<sup>2</sup>New Ecolabel criteria is expected to be released in March 2014.

## Performance

### Q Are the final paint film properties comparable to a coalescent-free system?

Test paints formulated with Optifilm enhancer 400 have demonstrated superior wet scrub resistance, burnish resistance, low-temperature film forming, mud cracking, leaching (ASTM D7190-10), and "touch-up" properties when evaluated against a coalescent-free system.

The wet scrub resistance of our test paints was evaluated using the BS EN ISO 11998 test method. This method determines the mechanical resistance of the paint films by calculating the loss in film thickness after 4 weeks of conditioning. The low-temperature wet scrub resistance of the paints was also evaluated. By simply postadding 0.5% (on total weight of paint) Optifilm enhancer 400 to a paint based on a VAE resin, the wet scrub resistance was improved by 1 DIN class.

Therefore by opting to formulate with Optifilm enhancer 400, the formulator not only benefits from low emission, low odor, near-zero VOC paints but will see improved final paint film properties.

### Scrub test classification/evaluation of loss of dry film thickness after 4 weeks drying (DIN EN 13 300)

Paint loss	# Scrub cycles	Classification
<5 µm	200 scrub cycles	Class 1
>5 µm and <20 µm	200 scrub cycles	Class 2
>20 µm and <70 µm	200 scrub cycles	Class 3
<70 µm	40 scrub cycles	Class 4
>70 µm	40 scrub cycles	Class 5

### Q How does the performance of paints formulated with Eastman Optifilm™ enhancer 400 compare to paints formulated with a conventional coalescent?<sup>1</sup>

Eastman Optifilm™ enhancer 400 is a zero-VOC content, low odor, near zero-emission coalescent. It is a nonyellowing coalescent that is compatible with all latex types. The coalescent improves film integrity resulting in better touch-up properties, scrub resistance, and a good overall balance of performance properties.

In low-PVC paints (high binder content formulations), the formulator may observe a reduction in film hardness. This can be overcome by using Optifilm enhancer 400 in combination with other coalescents such as Eastman Texanol™ ester alcohol or Eastman EEH solvent.

## Formulating

### Q Eastman Optifilm™ enhancer 400 remains in the paint film. Does this mean that adding too much to my paint may have an adverse effect on the final paint film properties?

It is essential that the formulator determines the correct coalescent demand for the paint system. Too little Optifilm enhancer 400 can result in an incoherent film while too much can have a detrimental effect on the final paint film properties. We recommend that the coalescent be added to the paint and left to equilibrate for a minimum of 24 hours before any evaluations are conducted (including MFFT tests).

### Q Is Eastman Optifilm™ enhancer 400 compatible with all latex types?

Eastman Optifilm™ enhancer 400 has shown compatibility and good performance with a variety of different latex types including low/zero coalescent demand polymers.

### Q How do I incorporate Eastman Optifilm™ enhancer 400 into my paint?

Eastman Optifilm™ enhancer 400 can be added to your paint in the mill base or in the final letdown stage. We advise that the coalescent and polymer should be left for at least 24 hours to equilibrate before an MFFT ladder study is carried out.

### Q Who should I contact for more information on Optifilm enhancer 400?

For additional questions and information, contact your Eastman sales representative or visit our website at [http://www.eastman.com/Markets/Coatings/TechnologySolutions/Pages/Eastman\\_Coalescents.aspx](http://www.eastman.com/Markets/Coatings/TechnologySolutions/Pages/Eastman_Coalescents.aspx).



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