

# THE METHOD

Formaldehyde Reduction Attenuation Test version 0917-1 with Safecoat Zero VOC paints



Primer was applied with 1.2ml / 0.01 sq.mtr (which is equivalent to 336 sq.ft/gal)



Safecoat Zero VOC paint was applied a day later with same coverage.



Another coat was applied two hours later with same coverage.



One week later, formaldehyde emissions were tested with NTE-3100 and F.R.A.T. method 0917-1. Emissions can be read via either Desiccator (mg/L) or Small Chamber ( $\mu\text{g}/\text{m}^2/\text{hr}$ ) methodology.

## THE RESULTS

**Pearl**

Formaldehyde outgassing reduced  
by **100%**  
in this experiment

Uncoated MDF surface emitted 1.926 mg/L or 126  $\mu\text{g}/\text{m}^2/\text{hr}$   
Safecoat coated MDF surface emitted 0.000 mg/L or 0.00  $\mu\text{g}/\text{m}^2/\text{hr}$

**Semi Gloss**

Formaldehyde outgassing reduced  
by **98.1%**  
in this experiment

Uncoated MDF surface emitted 2.412 mg/L or 162  $\mu\text{g}/\text{m}^2/\text{hr}$   
Safecoat coated MDF surface emitted 0.047 mg/L or 3.24  $\mu\text{g}/\text{m}^2/\text{hr}$

**Eggshell**

Formaldehyde outgassing reduced  
by **94.6%**  
in this experiment

Uncoated MDF surface emitted 1.863 mg/L or 121  $\mu\text{g}/\text{m}^2/\text{hr}$   
Safecoat coated MDF surface emitted 0.100 mg/L or 6.83  $\mu\text{g}/\text{m}^2/\text{hr}$

**Flat**

Formaldehyde outgassing reduced  
by **92.2%**  
in this experiment

Uncoated MDF surface emitted 3.317 mg/L ( or 230  $\mu\text{g}/\text{m}^2/\text{hr}$ )  
Safecoat coated MDF surface emitted 0.259 mg/L ( or 17.6  $\mu\text{g}/\text{m}^2/\text{hr}$ )

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# CONTROLLING FORMALDEHYDE EMISSIONS WITH SAFECOAT CLEAR SEALERS - A COMPARATIVE ANALYSIS

In this analysis, three coats of each sealer was applied to the right side of MDF (medium density fiberboard). The left side was left uncoated. After a seven day curing period, the board was measured for formaldehyde emission with NTE-3100 and F.R.A.T. method 0917-1.



Safecoat Safe Seal



Safecoat Hard Seal



Safecoat Polyureseal BP  
(Satin Finish)



Safecoat Acrylacq  
(Satin Finish)



Safecoat AcriGlaze  
(Gloss Finish)

## Safe Seal

Formaldehyde outgassing reduced  
by **100%**  
in this experiment

Uncoated side emitted 1.043 mg/L of formaldehyde which is in the E1± grade. The Safecoat Safe Seal side did not emit at all with 0.000 mg/L reading ( note the effective range scale )

**Safecoat Safe Seal stops the outgassing of formaldehyde by 100% in this experiment. ( 1 - 0.000/1.043=100% )**

## Poly BP

Formaldehyde outgassing reduced  
by **100%**  
in this experiment

Uncoated side emitted 1.477 mg/L of formaldehyde which is in the very high end scale of E1± grade. The Safecoat Polyureseal BP side did not emit at all with 0.000 mg/L (note the effective range scale)

**Safecoat Polyureseal BP stops the outgassing of formaldehyde by 100% in this experiment. ( 10.000/1.477=100% )**

## AcriGlaze

Formaldehyde outgassing reduced  
by **100%**  
in this experiment

Flame retardant treated pine emitted .279 mg/L of formaldehyde. After Safecoat AcriGlaze treatment, the pine emitted 0.00 mg/L.

**Safecoat AcriGlaze stops the outgassing of formaldehyde by 100% in this experiment.**

## Acrylacq

Formaldehyde outgassing reduced  
by **97.7%**  
in this experiment

Uncoated side emitted 1.371 mg/L of formaldehyde which is on the very high end scale of E1± grade. The Safecoat Acrylacq side emitted only 0.032 mg/L which is in the very low end scale of Super E0± grade.

**Safecoat Acrylacq stops the outgassing of formaldehyde by 97.7% in this experiment ( 1 - 0.032/1.371=97.7% )**

## Hard Seal

Formaldehyde outgassing reduced  
by **96.2%**  
in this experiment

Uncoated side emitted 1.414 mg/L of formaldehyde which is on the very high end side of "E1" grade. The Safecoat Hard Seal side emitted only 0.053 mg/L which is in the very low end of "Super E0" grade.

**Safecoat Hard Seal stops the outgassing of formaldehyde by 96.2% in this experiment ( 1 - 0.053/1.414=96.2% )**

1. Emission readings were taken with Desiccators Methodology ( mg/L ) for MDF grade certificates.

2. Standard industrial MDF sample boards were used in this analysis.\*

3. Sealers were applied on May 28th, 2016. Measurement were made on June 5th, 2016.

4. In this study, a coin-sized passive emission colorimetric sensor (PECS) and a portable reflectance photometry device were developed to measure the formaldehyde emission rates on-site. Major emission sources of formaldehyde in a residential room could be easily identified with a measurement time of only 30 minutes using the sensor.

\*AcriGlaze analysis was done on flame retardant treated southern yellow pine.

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