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## **LP<sup>®</sup> SolidStart<sup>®</sup> Engineered Wood Products and Formaldehyde Emissions**

***A document on the use of low formaldehyde-emitting adhesives in the  
manufacture of Louisiana-Pacific Corporation (LP) engineered wood  
products.***

Written by Phil Vacca, PE  
Reviewed by the APA<sup>®</sup>

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LP's engineered wood products are fabricated using adhesives with insignificant formaldehyde emission levels – so low as to be exempted from the scope of the Airborne Toxic Control Measure for Composite Wood Products by the Air Resources Board (ARB) of the California Environmental Protection Agency<sup>1</sup>.

These adhesives include phenol formaldehyde (PF), phenol-resorcinol formaldehyde (PRF), melamine formaldehyde (MF) and polymeric diphenylmethane diisocyanate (pMDI). **No urea formaldehyde (UF) adhesives are used in the components or manufacture of LP's SolidStart Engineered Wood Products.**

The adhesives used in LP engineered wood products develop chemically stable bonds that are highly moisture resistant, reducing the potential to release formaldehyde compared to products made with traditional UF adhesives. LP products undergo extensive testing to demonstrate compliance with ASTM and U.S. Product Standards and are monitored for ongoing compliance by APA – The Engineered Wood Association.

Formaldehyde tests (ASTM E1333 Large Chamber) performed by the Composite Panel Association and the Hardwood Plywood and Veneer Association on LP engineered wood products indicated very low formaldehyde emissions of 0.02 parts per million (ppm) to 0.04 ppm. These results are in the range of naturally occurring background levels as determined by the US Consumer Products Safety Commission<sup>2</sup> and are well below the 0.10 ppm level that the Environmental Protection Agency (EPA) considers as “elevated” – the exposure level that “can cause watery eyes, burning sensations in the eyes and throat, nausea, and difficulty breathing in some humans”<sup>3</sup>.

Additional information on formaldehyde emissions from structural wood products of the type manufactured by LP is available from many sources including APA – The Engineered Wood Association ([www.apawood.org](http://www.apawood.org)).

<sup>1</sup> Air Resources Board of the California Environmental Protection Agency:  
<http://www.arb.ca.gov/regact/2007/compwood07/fro-final.pdf>

<sup>2</sup> US Consumer Products Safety Commission:  
<http://www.cpsc.gov/CPSCPUB/PUBS/725.html>

<sup>3</sup> US Environmental Protection Agency:  
<http://www.epa.gov/iaq/formalde.html>

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