

## VOCs in Schools

Children are more sensitive than adults to the effects of VOCs due to their physiological differences, developing immune systems and smaller body masses. Asthmatic conditions in children can be exacerbated by the presence of VOCs [1]. The VOCs present in the home environment can be controlled by consumer product choices, but what are children exposed to while at school? The majority of VOCs present in the classroom come from hand sanitizers/antiseptic wipes, white board markers and cleaners, air fresheners, and arts and craft supplies.

Hand sanitizers and antiseptic wipes contribute the majority of ethanol and isopropanol found in the classroom. White board markers also contain ethanol and isopropanol, but in addition, contribute butanol, diacetone alcohol, methyl isobutyl ketone, and 2-butoxy-ethanol to the room VOCs [2]. Older brands of markers also contain n-butyl acetate. A popular White Board Cleaner contains propylene glycol n-butyl ether. These solvents can be troublesome for children with chemical sensitivities or asthmatic health issues.

Air fresheners contain limonene and other terpenes, which contribute to the aroma of the air freshener, but also have caused allergic reactions in children. Finally, arts and craft supplies, which include glues, contact cements, etc., can contribute tetrahydrofuran, toluene, and methyl ethyl ketone.

Gasoline, diesel, and solvent fumes can also enter the class environment from maintenance supplies. As a result, these materials should not be stored in or near the classroom area.

[1] Int J Environ Res Public Health. 2013 Dec; 10(12): 6273–6291.

[2] <http://www.healthyschools.org/documents/Markers-2011.pdf>

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