Atmospheric Analysis & Consulting, Inc.
Air Quality Laboratory
www.aaclab.com

AIR QUALITY TESTING SERVICES
for the wood products, pulp and paper industry

Have a project pertaining to the Wood Products, Pulp and Paper Industry?
In addition to being a participating member of NCASI, AAC has provided analytical services related to these industries throughout North America since 1997. While the majority of these projects focused on emissions testing and source characterization from mills and processing plants, many others focused on deforestation, research and manufacturing facilities including bleaching, curing and resin applications as well as product fabrication.

Over the past two decades, these types of facilities have fallen under heavy scrutiny, leading to more regulations and emission control systems. The EPA has since issued three MACT rules (Maximum Achievable Control Technology) and a recent NSPS (New Source Performance Standard) for Kraft Pulp Mills, in addition to various other source specific rulings dealing with these emissions. Currently, there is a proposed EPA rule that would limit Formaldehyde releases from composite wood products (as well as an existing CARB rule).

Veneer Dryer Scrubbers

NCASI 99.02

Therefore, the need for more refined and diverse analytical capabilities has become increasingly important. Using predominantly NCASI methods in conjunction with various other USEPA and AAC custom methods, we have established an extensive HAP monitoring list, which is summarized in Table 1.

The six HAPS regulated (Plywood and Wood Composites MACT rule) in this industry are Formaldehyde, Acetaldehyde, Acrolein, Propionaldehyde, Methanol and Phenol. Each wood product (MDF, Particleboard, OSB, Softwood plywood, Hardwood plywood, etc.) process emits some or all of the above six HAPS along with lesser amounts of other compounds such as BTEX, cumene, MEK, MIBK and styrene.

Formaldehyde is used in most of the glues that make plywood and in the resins used to make particleboard and MDF and Phenol is used in Phenol-Formaldehyde glue and resins while all six HAPS can come from heating and dehydrating wood products (dehydration of plant glycerol forms Acrolein) or from other additives such as Linseed oil used in Hardboard (forms Propionaldehyde).

Table 1. AAC NCASI Analytes and Testing Methods

Analytes	Method	Media
Form, Acet, Acetone,MEK,MeOH	NCASI 94.02	Impinger/ Silcia Gel Tube
MeOH	NCASI 94.03/EPA 308	Water Impinger
Formaldehyde, MeOH, Phenol	NCASI 98.01	Water Impinger
Form, Acet, Act, Acr, Pro, MEK, MIBK, MeOH, Phenol,VOCs, and Terpenes	NCASI 99.02	Impinger/ Canister
Form, Acet, Acr, Prop, MeOH, Phenol	NCASI 105.01	BHA Impinger
Form	EPA 323	Water Impinger
Formic, Acetic, Lactic Acids	AAC IC	Impinger/ Silcia Gel Tube
Phenols and Cresols	EPA TO-8	NaOH
VOCs	EPA TO-15	Canister/Bag
Total Reduced Sulfur	ASTM D-5504	Silonite Canister/Bag
Sulfuric Acid (and SO3, SO2)	NCASI 8A	Filter/Impinger/Condenser
Particulate Matter and Condensable PM	EPA 5/202/201A	Filter/Impinger
HCL and other Inorganic Acids	EPA 26A	H2SO4 Impingers

Form-Formaldehyde
Acet-Acetaldehyde
Acr-Acrolein
Act-Acetone
Pro-Propanal
MEK-Methyl Ethyl Ketone
MIBK-Methyl Isobutyl Ketone
MeOH-Methanol

We have analyzed an extensive list of additional compounds using the water impinger/silica gel method including various alcohols, esters, organic acids, carbonyls, furaldehydes, diones, diols, etc. Additional non-polar compounds can be collected on a charcoal tube behind the silica gel tube and extracted with solvent and analyzed by GC-FID etc.

AAC also has extensive experience analyzing for Condensable Particulate Matter using EPA Method 202 (old and new) and for TRS and speciated sulfur compounds using ASTM D-5504.

Please contact AAC for any additional information on NCASI sampling and analysis methods.
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