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Testing of Bleach Plant Effluents, Final Effluents and Air Emissions for Cluster Rule Regulations

Columbia Analytical Services, Inc. has been providing analytical services to the pulp and paper industry using EPA, NCASI, ASTM, TAPPI, and in-house developed procedures for over 15 years. When cluster rules were initially proposed, Columbia Analytical worked with the EPA and NCASI on method validation studies to refine the testing methods that would be used for compliance purposes. During this time, Columbia Analytical also performed testing for various mill trials to provide data useful for determining compliance levels and alternative pulping/bleaching processes.



We used our knowledge of the pulping, bleaching, and treatment processes to help obtain representative samples, to recommend cost-effective testing strategies, and to review the data for "reasonableness."

Columbia Analytical has tested thousands of pulp and paper related samples for chlorinated phenolics, chloroform, AOX, methanol, formaldehyde, and selected hazardous air pollutants (HAPs) in anticipation of promulgation of the cluster rules.

These samples have included bleach plant effluents, brown stock washer effluents, black liquors, foul condensates, turpentine, primary effluents, secondary effluents, primary sludges, secondary sludges, receiving waters, and air emission sampling trains.

The first phase of the cluster rule was released by the EPA in November, 1997 and finally promulgated in April, 1998 (40 CFR Parts 63, 261, and 430). As these standards are incorporated into permits, Columbia Analytical will offer our expertise to perform testing and assist the pulp and paper industry meet the new compliance requirements. Our capabilities are detailed on the back page.

The Columbia Analytical team will bring a variety of technical expertise to your particular situation.

Contact Information

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| Sample Type | Analysis | Method/Technique | MRL |
|----------------------------|---|--|-----------------|
| Aqueous Effluents | 12 Chlorinated Phenolics* | EPA 1653 (4/98 Version) | 2.5 - 5.0 (ppb) |
| | Formaldehyde and Acetylaldehyde (Low Level) | EPA 8315 | 50 (ppb) |
| | Sulfur Speciation (4 TRS Compounds) | ASTM D5504-91M GC/SCD Techniques | 1 (ppb) |
| | Turpentine Components | EPA 8270 M | 10 (ppb) |
| | Phenol and Catechol | NCASI Technical Bulletin 734 | 1 - 5 (ppb) |
| | Chloroform* | EPA 624 | 0.001 (ppm) |
| | Adsorbable Organic Halides (AOX)* | EPA 1650 | 0.02 (ppm) |
| | Chemical Oxygen Demand (COD) | EPA 410.1 or EPA 410.2 | 5 (ppm) |
| | Methanol | NCASI -DI/MEOH - 94.03 | 0.5 (ppm) |
| | Methanol (Low Level) | EPA 5031 / 8015 | 0.02 (ppm) |
| Black Liquor | Methanol, Acetylaldehyde, Methyl Ethyl Ketone (MEK) & Propionaldehyde | NCASI - DI/MEOH 99.01 | 0.5 - 1 (ppm) |
| | Methanol | NCASI MEMO (1/22/99) | 15 - 30 (ppm) |
| | Formaldehyde and Acetylaldehyde | EPA 8315M | 1 (ppm) |
| | Sulfur Speciation (4 TRS Compounds) | ASTM D5504-91M GC/SCD Techniques | 0.1 (ppm) |
| | Phenol and Catechol | NCASI Technical Bulletin 734 | 0.5 - 3 (ppm) |
| Air Emission Trains | 2,3,7,8 TCDD/TCDF (Dioxin/Furans)* | EPA 1613 | 10 (ppq) |
| | Methanol | EPA 308 | |
| | Formaldehyde and Acetaldehyde | EPA TO-11 or EPA TO-5 | |
| | Sulfur Speciation (4 TRS Components) | ASTM D5504-98 (GC/SCD Techniques) | |
| | Chloroform | NCASI Tech Bulletin 531 (Duplicate Injections) | |
| | 43 Volatile HAPs | EPA TO-15 | |
| | Dioxins/Furans | EPA Methods 23 and 8290 | |
| | 35 Semivolatile HAPs | EPA Methods 0010 and 8270 | |
| | Phenols and Cresols | EPA TO-8 | |
| | Hydrochloric Acid | EPA Methods 26 and 300.0 | |
| 11 Metals HAP's | EPA Method 29 | | |

*The routine cluster rule effluent monitoring requires analysis for AOX, 12 chlorinated phenolics, chloroform, and dioxins/furans (2,3,7,8-TCDD and TCDF). Other test parameters are listed for potential HAPs emissions from various process streams, for mass balance purposes, for potential expected state monitoring requirements, or for specific monitoring state requirements already imposed on an individual facility. Different methods are shown for the same parameter due to either cost differences or detection limit differences required to demonstrate compliance for a particular application.

Ask for specific quotes for all air emission projects to ensure the analytical approach meets data quality objectives for the project and all sampling supply costs are specified. Many additional analyses, techniques, and approaches are available besides those shown.

Air emission testing for HAPs associated with the cluster rules require a close working relationship between mill technical personnel, air sampling personnel, and the laboratory. Columbia Analytical strives to provide analytical solutions to our clients taking into account process knowledge, monitoring costs (sampling and analysis), project objectives, and potential costs associated with the impact of the data.

