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EXECUTIVE SECRETARIAT

May 6, 2015

**Via Hand Delivery and by Email to [jones.jim@epa.gov](mailto:jones.jim@epa.gov)**

Administrator Gina McCarthy (1101A)  
Office of the Administrator  
Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

**Re: Request for Full Exemption of Four Pulping Chemicals from the TSCA Chemical Data Reporting Rule Requirements**

Dear Administrator McCarthy:

The American Forest & Paper Association (AF&PA) hereby petitions EPA to amend the Chemical Data Reporting rule (CDR), 40 C.F.R. Part 711, to exempt from all CDR requirements four pulping chemicals involved in the manufacture of paper and other pulp-based products.

The four pulping chemicals are complex mixtures used in the kraft pulping process:

- Sulfite Liquors and Cooking Liquors, white (CAS No. 68131-33-9) (white liquor)
- Sulfite Liquors and Cooking Liquors, spent (CAS No. 66071-92-9) (black liquor)
- Sulfite Liquors and Cooking Liquors, spent, oxidized (CAS No. 68514-09-0) (black liquor, oxidized)
- Sulfite Liquors and Cooking Liquors, green (CAS No. 68131-30-6) (green liquor)

Each of these substances is manufactured and recycled onsite in a continuous closed loop. EPA has an enormous amount of information about these pulping chemicals and little current interest in them, as their potential risks are well understood and adequately managed.

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This petition first identifies the four pulping chemicals in greater detail and explains why the kraft chemical regeneration process has led to inflated production volumes for these pulping chemicals in CDR data. Next, it summarizes hazard, exposure, and use information that EPA already has regarding these four pulping chemicals. It then discusses why EPA should grant a full exemption for these high-volume, low-interest pulping chemicals, as it did previously with polymers, microorganisms, and certain forms of natural gas.

## I. Identification of the Four Pulping Chemicals

### 1. Chemical Description

The four pulping chemicals that are the subject of this petition are each classified by EPA as UVCBs (substances of unknown or variable compositions, complex reaction products, and biological materials):

White liquor (CAS No. 68131-33-9): Sulfite liquors and cooking liquors, white. The solution formed by reacting the sodium salts of green liquor with calcium oxide.

Black liquor (CAS No. 66071-92-9): Sulfite liquors and cooking liquors, spent. The aqueous solution resulting from the reaction of lignocellulosic substances (wood and other agricultural fiber sources) with one or more pulping chemicals including those used in the kraft, sulfite, semichemical or other pulping processes. Composition is highly variable and includes excess pulping chemicals, dissolved and degraded cellulose, hemicellulose and lignin.

Black liquor, oxidized (CAS No. 68514-09-0): Sulfite liquors and cooking liquors, spent, oxidized. The substance resulting from the oxidation of the aqueous solution resulting from the reaction of lignocellulosic substances (wood or other agricultural fiber sources) with one or more pulping chemicals including those used in Kraft, sulfite, semichemical or other pulping processes or by the oxidation of the desugared component of this spent pulping liquor.

Green liquor (CAS No. 68131-30-6): Sulfite liquors and cooking liquors, green. A solution obtained by dissolving the chemicals recovered in the alkaline pulping process in water.

These pulping chemicals are primarily composed of common inorganic chemical substances. White liquor consists primarily of NaOH, Na<sub>2</sub>S, Na<sub>2</sub>CO<sub>3</sub>, and Na<sub>2</sub>SO<sub>4</sub>. Green liquor consists primarily of Na<sub>2</sub>S, Na<sub>2</sub>CO<sub>3</sub>, and Na<sub>2</sub>SO<sub>4</sub>. Black liquor and black liquor, oxidized are composed of spent pulping chemicals, wood constituents such as lignin, and water. Black liquor, oxidized is virtually the same chemical substance as black liquor, the sole distinction being that the black liquor has been oxidized in a black liquor oxidation system (i.e. sulfides converted to thiosulfides and sulfates) before being further concentrated in a direct-contact evaporator (DCE). Less than 20% of black liquor generated at present is oxidized and sent to a DCE; the remaining 80% of generated black liquor is not oxidized since it is not subjected to a DCE, but rather concentrated in a concentrator and directly burned in a recovery furnace.

EPA published a Screening-Level Hazard Characterization for black liquor based on a review of AF&PA submissions under the High Production Volume (HPV) Challenge Program. EPA concluded that the potential for bioaccumulation of black liquor is expected to be low; that the potential acute hazard of neutralized black liquor to fish, aquatic invertebrates, and plants is low; that neutralized black liquor is not mutagenic and did not induce chromosomal aberrations; and that the potential health hazard of black liquor is its high corrosivity at the points of contact.<sup>1</sup> EPA's hazard screen report did not identify any important data gaps, concluding that it is not feasible or necessary to perform additional testing because of the highly corrosive nature of black liquor.<sup>2</sup> See Section III.1 and Attachment A of these comments for more information on EPA studies and publications related to these four pulping chemicals.

## **2. Volumes Produced**

As described in detail in Section III, the four pulping chemicals are generated and recycled in a closed loop system at the kraft pulp mill. A single ion of sodium present in white liquor will cycle through the chemical recovery process an estimated 785 times a year.<sup>3</sup>

<sup>1</sup> The corrosivity of discharges and emissions from the kraft pulping process is managed under various EPA regulations applicable to that process, as indicated in Section III of these comments.

<sup>2</sup> See EPA, Screening-Level Hazard Characterization of High Production Volume Chemicals (2007), [http://www.epa.gov/hpvis/hazchar/66071929\\_Spent%20Pulping%20Liquor\\_HC\\_October%202007\\_INTE\\_RIM.pdf](http://www.epa.gov/hpvis/hazchar/66071929_Spent%20Pulping%20Liquor_HC_October%202007_INTE_RIM.pdf).

<sup>3</sup> This calculation was derived from the weak liquor tank capacities and pulp production rates for three kraft pulp mills, as reported by EPA in its Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control, Table 7-1 (1997), available at <http://nepis.epa.gov/Exe/ZyNET.exe...> (Entry 14 in Attachment A). Assuming an average generation rate of 3,200 lb. black liquor solids/ton pulp, 14% black liquid solids in weak black liquor, and average specific gravity of 1.06 for the weak black liquor, the average residence times of the liquor in the tanks at the three mills is 8.14, 16.38 and 8.49 hours, or an average of approximately 11 hours. If the mills operate 360 days/year, the average number of times the kraft cycle will repeat itself in a year is about 785 times (360 days of operation x 24 hours in a day/ 11 hours for a complete cycle).

EPA is familiar with the repetitive chemical recovery process. During the 2012 CDR period, EPA reporting instructions indicated that kraft pulp liquors should be identified as chemical substances that are “recycled, remanufactured, reprocessed, or reused.” The instructions explained:

During papermaking, wood pulping using the white liquor generates a black pulping liquor waste product, which is typically burned, resulting in the production of energy and an inorganic smelt that becomes green liquor. Green liquor is further processed to generate white liquor, which is used in the wood pulping process. The pulping liquors generated by the pulping cycle are CDR reportable chemical substances that are considered recycled, remanufactured, reprocessed, or reused.<sup>4</sup>

Although EPA recognizes the cyclical nature of the kraft chemical recovery process, it does not account for the ongoing regeneration of the four pulping chemicals in its CDR data. Consequently, essentially the same pulping chemicals are counted hundreds of times for purposes of calculating annual production volumes. See Table 1 for the immense production volumes reported in the 2012 CDR data, totaling over a trillion pounds for just these four pulping chemicals.

**Table 1: National Production Volume Reported in 2012 CDR Data**

<b>Chemical Substance</b>	<b>National Production Volume in 2011</b>
White Liquor	282,338,107,811 lbs.
Black Liquor	474,972,520,470 lbs.
Black Liquor, Oxidized	16,376,500,000 lbs.
Green Liquor	360,512,415,204 lbs.
<b>Total</b>	<b>1,134,199,543,485 lbs.</b>

If EPA were to take into account the regeneration and recycling of the four chemicals, the total production amounts would be significantly reduced. For example, in 2010, it was estimated that a 1,000 ton/day kraft pulp mill would produce 1.65 billion lbs./year of black liquor, while the net volume produced would be roughly 16.5 million lbs./year (assuming net volume corresponds only to those make-up chemicals needed to account for a 1% liquor loss and 1% lime mud loss at the example mill).<sup>5</sup>

<sup>4</sup> See EPA, Instructions for the 2012 TSCA Chemical Data Reporting (2012), [http://www.epa.gov/cdr/tools/InstructionsManual.041712\\_revised-7\\_9\\_12.pdf](http://www.epa.gov/cdr/tools/InstructionsManual.041712_revised-7_9_12.pdf).

<sup>5</sup> This calculation assumed 70% solids as-fired spent liquor, 25% solids in green liquor, 22% solids in white liquor, and 360 days/year operation.

### **3. Why AF&PA is Submitting This Petition**

AF&PA has repeatedly requested that EPA reconsider its treatment of pulping chemicals under the CDR. In 2005 and 2006, AF&PA representatives met with EPA to discuss the issue of repetitive counting of the chemicals regenerated during the kraft pulp production process. This issue was again raised in AF&PA's written comments on the 2010 Inventory Update Rule (IUR) Modifications rulemaking,<sup>6</sup> submitted to the Office of Pollution Prevention and Toxics on October 12, 2010. In April 2013, following President Obama's issuance of Executive Order 13610, "Identifying and Reducing Regulatory Burdens," AF&PA requested the opportunity to discuss with EPA how it could eliminate redundant or unnecessary data reporting for the pulp and paper industry. This meeting took place in June 2013. As recently as April 2015, responding to EPA's request for comment on the periodic retrospective review of its regulations, AF&PA again submitted comments to EPA on the significant costs and minimal benefits associated with CDR reporting for the pulping chemicals.

The four pulping chemicals are of little current interest to EPA. EPA and industry studies, such as AF&PA's HPV study of black liquor, indicate that the properties and environmental and health effects of the four pulping chemicals are now well-known. (See Section III.1). Due to the maturity of the industry, the previously reported IUR and CDR data also provide ample information to meet regulatory needs. (See Section III.2). Given the availability of studies and previously collected data on the four pulping chemicals, CDR requirements impose an unjustifiable burden on the pulp and paper industry. (See Section III.3). Further, the kraft pulping process is heavily regulated by EPA and state environmental agencies. As a result, manufacturers of the four pulping chemicals adequately manage the potential risks associated with them. (See Section III.4).

Issuing an exemption for the four pulping chemicals would eliminate an unnecessary burden on the pulp and paper industry, without depriving EPA or other regulatory agencies of needed information. It would also encourage recycling practices by reducing the reporting burdens on recyclers. EPA has previously indicated that it wants to promote recycling through CDR exemptions, stating that:

EPA encourages recycling. The Agency intends to examine the collected information related to byproducts, recognizing the importance of recycling, to identify whether there are segments of byproduct manufacturing for which EPA can determine that there is no need for the CDR information for the 2016 or other future reporting cycles.<sup>7</sup>

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<sup>6</sup> 75 Fed. Reg. 49656 (Aug. 13, 2010).

<sup>7</sup> 76 Fed. Reg. 50816, 50833-34 (Aug. 16, 2011).

EPA has further stated: "EPA would consider an exemption for on-site recycling and intends to use the CDR to recognize industry sectors that are using 'green practices.'"<sup>8</sup> Therefore, an exemption for the four pulping chemicals would align with EPA policy.

II. **Information Concerning the Role of the Four Pulping Chemicals in the Kraft Pulping Process**

The four pulping chemicals are involved in the recovery and regeneration of spent pulping chemicals that are a product of the kraft pulping process.

White liquor, an aqueous solution of sodium sulfide and sodium hydroxide, is used in the process of "cooking" wood chips in a digester at elevated temperature and pressure. The cooking process results in the separation of cellulose fibers from lignin and other wood components. The lignin and other wood components remain in the spent pulping liquor, referred to as black liquor. At some mills, the black liquor is oxidized in a black liquor oxidation system and then brought into direct contact with exhaust gas from the cooking process in a direct contact evaporator. This process generates black liquor, oxidized.

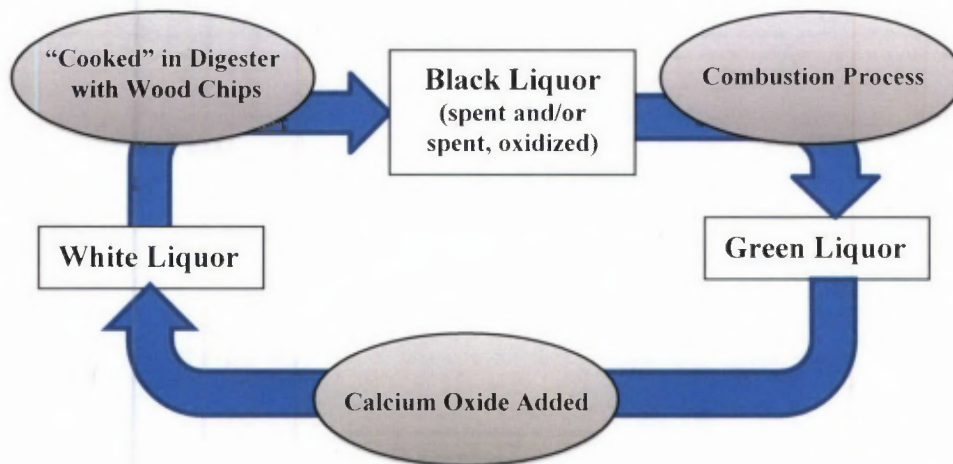
The organic portion of the black liquor or black liquor, oxidized is processed in a recovery furnace where it is burned for energy recovery. The inorganic portion undergoes oxidation-reduction reactions. The resulting "smelt" is used as make-up chemicals for the green and white liquors. The furnace smelt (the liquefied inorganics drained from the bottom of the furnace, i.e., the remaining portion of the black liquor and black liquor, oxidized) is dissolved in water to form green liquor. The green liquor is recausticized using calcium oxide to form white liquor. The white liquor is placed back in the digester, and the process repeats. On an infrequent basis, relatively small volumes of each of these chemicals may be transferred off site to other paper mills.

Figure 1 below provides a simplified diagram of the chemical recovery process for white, black, and green liquor.

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<sup>8</sup> Id. at 50845-46.

**Figure 1: Kraft Chemical Recovery Loop**



The kraft chemical recovery process is more than 95% efficient; that is, more than 95% of the pulping chemicals are recovered and reused during the pulp production process.<sup>9</sup> All of the white liquor generated is introduced into batch or continuous digesters to produce chemical wood pulp. The inorganic portions of black liquor and black liquor, oxidized are recycled to make green liquor, and the organic portions are used for energy recovery. As EPA stated in its Screening-Level Hazard Characterization for Spent Pulping liquor, "The vast majority of spent pulping liquor [or, black liquor] is recycled for chemical or energy recovery at the production site."<sup>10</sup> Green liquor is used to generate white liquor through the addition of lime (calcium oxide). Because white liquor produced in the chemical recovery process provides the process chemicals needed to produce kraft pulp, mills have a strong incentive to maximize the recovery and regeneration of green liquor.

Kraft pulp production is also energy-efficient. As recognized by EPA in 2010, the pulp and paper sector meets more of its energy demands through residuals from the pulp production process than from traditional fossil fuel sources:

<sup>9</sup> EPA, Technical Support Document: Chemical Recovery Combustion Sources at Kraft and Soda Pulp Mills 2-3 (1996) (Entry 19 in Attachment A); TAPPI, The Kraft Chemical Recovery Process 1.1-1 (2008), available at [www.tappi.org/content/events/08kros/manuscripts/1-1.pdf](http://www.tappi.org/content/events/08kros/manuscripts/1-1.pdf). There are two additional chemical substances that are recycled in this closed loop process. Calcium oxide is added for recausticizing. It forms precipitated calcium carbonate (lime mud), which is burned in a lime kiln to reclaim the original calcium oxide (reburned lime) for reuse in the recovery process.

<sup>10</sup> EPA, Screening-Level Hazard Characterization of High Production Volume Chemicals (2007), [http://www.epa.gov/hpvis/hazchar/66071929\\_Spent%20Pulping%20Liquor\\_HC\\_October%202007\\_INTE\\_RIM.pdf](http://www.epa.gov/hpvis/hazchar/66071929_Spent%20Pulping%20Liquor_HC_October%202007_INTE_RIM.pdf).

Two biomass by-products of the pulp and paper manufacturing process, black liquor and hog fuel (i.e., wood and bark), meet over half of the industry's annual energy requirements . . . . The use of these by-products as fuels significantly reduces the industry's dependence on purchased fossil fuels and electricity, with the added benefits of reduced raw material costs (i.e., avoided pulping chemical purchases) and reduced waste generation.<sup>11</sup>

AF&PA member pulp and paper mills sourced nearly 50% of their energy in 2012 from black liquor and black liquor, oxidized, and over 15% from waste wood and wood chips (hogged fuel) and bark. Further, an estimated 42% of AF&PA members self-generated over half of their power, and 23% sold excess power back to the grid.<sup>12</sup>

### III. Basis for Full Exemption Under 40 C.F.R. § 711.6(a)

AF&PA petitions EPA to add the four pulping chemicals to the list of chemical substances exempt from CDR requirements under 40 C.F.R. § 711.6(a). The reasons for exempting them are the same as those which EPA used in exempting other compounds, i.e., it does not have a current need for CDR information on them.

The chemical substances already entirely exempted are polymers, microorganisms, naturally occurring chemical substances, and certain forms of natural gas and water. When EPA adopted its original exemptions for what was then referred to as the IUR, it indicated that:

the purpose of these exclusions is to focus the information collection effort under this rule on those substances for which the Agency has the greatest need for current information.<sup>13</sup>

Similarly, in 1999, EPA proposed to amend the list of entirely exempted chemical substances by adding certain forms of natural gas to that list. At that time, it reasoned that "EPA's current need, and the current needs of other IUR information users" were fulfilled with respect to those chemical substances.<sup>14</sup> In 2003, EPA adopted the exemption as proposed, finding that:

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<sup>11</sup> EPA, Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Pulp and Paper Manufacturing Industry (2010), <http://www.epa.gov/nsr/ghgdocs/pulpandpaper.pdf> (Entry 3 in Attachment A).

<sup>12</sup> AF&PA, 2014 AF&PA Sustainability Report 7 (2014), <http://www.afandpa.org/docs/default-source/one-pagers/-2014-sustainability-report.pdf>.

<sup>13</sup> Proposed rule, Partial Updating of TSCA Inventory Data Base; Production and Site Reports, 50 Fed. Reg. 9944, 9946 (Mar. 12, 1985).

<sup>14</sup> Proposed rule, TSCA Inventory Update Rule Amendments, 64 Fed. Reg. 46772, 46778 (Aug. 26, 1999).



Adequate IUR information has been collected on the six chemical substances to fulfill EPA's and other IUR information users' current needs. EPA will take action to revoke this exemption if circumstances warrant in the future.<sup>15</sup>

For the reasons described below, EPA does not have a current need for CDR information on the four pulping chemicals, and this reporting overstates chemical manufacture and use (due to the recycling nature of their generation). Accordingly, EPA should amend section 711.6(a) to add "certain pulping chemicals," defined to mean the four pulping chemicals, and thus exclude them from all CDR reporting obligations.

**1. The Hazard and Exposure Potential of the Four Pulping Chemicals Are Well Understood**

CDR submissions are intended to provide EPA with accurate hazard and exposure data to be used in risk screening activity for non-exempt chemicals.<sup>16</sup> When EPA does not have a "current need" for these data, a full exemption from CDR reporting requirements is warranted.<sup>17</sup> Both hazard and exposure data are available in abundance for the four pulping chemicals. Accordingly, at this point EPA does not need CDR information from kraft pulp mills to make informed risk management decisions about them.

As demonstrated by the non-exhaustive list of publications in Attachment A, the kraft pulping process has been the subject of a tremendous amount of information and study by EPA. EPA has developed and implemented a number of regulations that address this industry sector.

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<sup>15</sup> Final rule, TSCA Inventory Update Rule Amendments, 68 Fed. Reg. 848, 874 (Jan. 27, 2003).

<sup>16</sup> See, e.g., Summary of EPA's Response to Public Comments Submitted for the Proposed TSCA Inventory Update Rule Amendments at 73 (2002), <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPPT-2002-0054-0271> ("EPA relies on risk screening to determine which chemical substances pose a potential risk to human health or the environment, and thus warrant a more detailed, resource-intensive analysis, or risk assessment. An evaluation of potential 'risk' is generally based on a combination of hazard information and exposure information. To the extent this information is complete and current, the preliminary determinations are more accurate.")

<sup>17</sup> In 1985, EPA proposed a CDR exemption for inorganic substances, which was adopted by a final rulemaking in 1986. 50 Fed. Reg. 9944 (Mar. 12, 1985); 51 Fed. Reg. 21,438 (June 12, 1986). In justifying this full exemption, EPA stated that the hazard potential of inorganic substances was "relatively well-established." 50 Fed. Reg. at 9947. EPA subsequently removed the inorganics exemption in 2002 because it felt that exposure data were also needed to prioritize concerns about inorganic substances. Summary of EPA's Response to Public Comments Submitted for the Proposed TSCA Inventory Update Rule Amendments at 72 (2002), <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPPT-2002-0054-0271>. The absence of a need for hazard and exposure data for the four pulping chemicals supports a full exemption from CDR requirements.

Kraft pulp and paper mills are large industrial users of process water. They have long been the subject of EPA water pollution regulations under the Clean Water Act, and regulation by other agencies even before EPA. Pulp washing and the recovery and regeneration of the four pulping chemicals accounts for a significant portion of the process wastewater loading at pulp mills and integrated pulp and paper mills. Consequently, the recycle and regeneration loops for the four pulping chemicals have been the subject of numerous EPA studies and industry surveys, and have led to several rulemakings. These include, for example, promulgation of Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT), and Best Available Technology Economically Achievable (BAT) effluent limitations guidelines for the Pulp, Paper, and Paperboard Point Source Category in several rulemakings in the 1970s, 1980s, and 1990s.<sup>18</sup>

In 2006, EPA conducted a "detailed study" of the Pulp, Paper, and Paperboard Point Source Category for the purpose of determining whether revision of the effluent limitations guidelines and pretreatment standards for the category was warranted.<sup>19</sup> One particular area of focus of that detailed study was the generation and management of metals and metal compounds, which are primarily found in the inorganic chemical mixtures involved in the use and recovery of the four pulping chemicals.<sup>20</sup> The study recognized and took advantage of the fact that EPA already has access to considerable relevant data on this subject, through Toxic Release Inventory (TRI) reporting, National Pollutant Discharge Elimination System (NPDES) permit application and compliance monitoring data, and other sources.<sup>21</sup> EPA's ultimate conclusion from review of the study was that discharges of metals from pulp and paper mills do not warrant revision of the effluent limitations guidelines and pretreatment standards.

Additionally, a tremendous body of scientific data on releases to water from kraft pulp mills has been generated over the past 70+ years, which EPA in turn has reviewed in the context of considering or promulgating effluent limitations guidelines. One particularly relevant source of information is studies of the actual impact of pulp mill effluent on receiving waters, through a number of Long Term Receiving Water Studies conducted by the National Council for Air and Stream Improvement (NCASI).<sup>22</sup>

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<sup>18</sup> See, e.g., the following entries in Attachment A: 13, 15, 18, 23, 28, 29, 32, 36, 37, 39, 49, 50, 52, 53.

<sup>19</sup> Final Report: Pulp, Paper, and Paperboard Detailed Study, EPA Engineering and Analysis Division, Office of Water, EPA-821-R-06-016, November 2006 (entry 6 in Attachment A).

<sup>20</sup> See id. at pp. 1-1, 2-7.

<sup>21</sup> See id. at pp. 2-1 to 2-7, 3-11 to 3-13, 6-3 to 6-4.

<sup>22</sup> See NCASI, NCASI Technical Bulletins (a list of bulletins updated 11/3/14), <http://www.ncasi.org/Downloads/Download.ashx?id=9720>, many of which address the kraft papermaking process.

EPA also has collected information on the production capacity and material throughput and air releases from the process equipment generating the four pulping chemicals for numerous Clean Air Act regulations. These include Standards of Performance for Kraft Pulp Mills (40 C.F.R. part 60, subparts BB, BBa), National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry (40 C.F.R. Part 63, Subpart S), and National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills (40 C.F.R. Part 63, Subpart MM).<sup>23</sup> EPA has amassed large administrative records for the initial rules and periodic revision. It has published several thousand pages of technical background documents and economic analysis documents supporting those rulemakings that contain information on the processing and use of the four pulping chemicals.<sup>24</sup>

Black liquor has also been the subject of extensive hazard assessment through voluntary HPV testing sponsored by AF&PA. EPA has completed a hazard screening for spent pulping liquor based on submissions under the HPV Challenge Program.<sup>25</sup> Hazard data are also available on white and green liquor; for example, such information can be found on the European Chemical Agency (ECHA) dissemination database for substances registered under Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).<sup>26</sup>

## **2. EPA Already Has Ample CDR Information for the Four Pulping Chemicals**

EPA has already collected a substantial amount of CDR information on the four pulping chemicals. For example, in 2012, there were 97 CDR submissions for white liquor, 107 CDR submissions for black liquor, 8 submissions for black liquor, oxidized, and 99 CDR submissions for green liquor.<sup>27</sup> These submissions supplemented the

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<sup>23</sup> Because Subpart S and Subpart MM are part of EPA's Maximum Achievable Control Technology (MACT) regulations, EPA is required to conduct a review of these standards every 8 years for residual risk and technology.

<sup>24</sup> See, e.g., the following entries in Attachment A: 1, 2, 8, 9, 12, 16, 17, 18, 25, 28.

<sup>25</sup> See EPA, Screening-Level Hazard Characterization of High Production Volume Chemicals (2007), [http://www.epa.gov/hpvis/hazchar/66071929\\_Spent%20Pulping%20Liquor\\_HC\\_October%202007\\_INTERIM.pdf](http://www.epa.gov/hpvis/hazchar/66071929_Spent%20Pulping%20Liquor_HC_October%202007_INTERIM.pdf).

<sup>26</sup> See ECHA, *Sulfite liquors and Cooking liquors, green*, [http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d8709ef-6793-0777-e044-00144f67d249/DISS-9d8709ef-6793-0777-e044-00144f67d249.html](http://apps.echa.europa.eu/registered/data/dossiers/DISS-9d8709ef-6793-0777-e044-00144f67d249/DISS-9d8709ef-6793-0777-e044-00144f67d249_DISS-9d8709ef-6793-0777-e044-00144f67d249.html); ECHA, *Sulfite liquors and Cooking liquors, white*, [http://apps.echa.europa.eu/registered/data/dossiers/DISS-9fdc1c1c-93c4-7476-e044-00144f67d031\\_DISS-9fdc1c1c-93c4-7476-e044-00144f67d031.html](http://apps.echa.europa.eu/registered/data/dossiers/DISS-9fdc1c1c-93c4-7476-e044-00144f67d031/DISS-9fdc1c1c-93c4-7476-e044-00144f67d031_DISS-9fdc1c1c-93c4-7476-e044-00144f67d031.html).

<sup>27</sup> See EPA, 2012 Chemical Data Reporting (CDR) Information, [http://java.epa.gov/oppt\\_chemical\\_search/](http://java.epa.gov/oppt_chemical_search/).

information already collected by EPA under the IUR during six prior reporting periods (1986, 1990, 1994, 1998, 2002, and 2006).

CDR data collected during past reporting periods for the four pulping chemicals are highly relevant to EPA as the uses and basic technologies associated with them have remained largely unchanged over time. The kraft process has been used by the paper industry in the production of pulp since the 1930s. It is a mature industry with well-understood technology. Moreover, the four pulping chemicals continue to be used exclusively by the pulp mills in the kraft pulp production and chemical recovery process and, in the case of black liquor and black liquor, oxidized, for production of thermal energy for the mill. Therefore, EPA does not have a current need for further CDR information to evaluate the level of risk posed by these four pulping chemicals.

**3. The Costs of Reporting Borne By Manufacturers and EPA Outweigh Any Benefit of Reporting**

The burden imposed by CDR requirements for the four pulping chemicals are not insignificant, as demonstrated by Table 2. In 2011, EPA estimated that the cost of preparing all parts of a CDR submission amounted to \$5,789 and 94.01 hours per report following the 2011 amendments to the IUR rule.<sup>28</sup> Using these numbers, the submission of CDR reports for the four pulping chemicals cost the paper industry an estimated \$1,800,379 and 29,237 hours during the 2012 reporting cycle. EPA was also required to spend money and time processing these submissions.

**Table 2: Burden of the 2012 Reporting Cycle on the Pulp and Paper Industry**

<b>Chemical Substance</b>	<b>Number of Reports</b>	<b>Number of Hours</b>	<b>Cost</b>
White Liquor	97	9,119	\$561,533
Black Liquor	107	10,059	\$619,423
Black Liquor, Oxidized	8	752	\$46,312
Green Liquor	99	9,307	\$573,111
<b>Total</b>	<b>311</b>	<b>29,237</b>	<b>\$1,800,379</b>

<sup>28</sup> See Table 4-56 in the Economic Analysis for the Final Inventory Update Reporting (IUR) Modifications Rule, June 30, 2011 (EPA, 2011).

Given that there are a substantial number of hazard- and exposure-based studies already in existence on the kraft pulping process, and that EPA possesses CDR information on the four pulping chemicals from prior reporting periods, these continual costs cannot be justified.

The CDR reporting requirements are particularly onerous in light of the fact that EPA can easily remove the exemption, as it did with inorganic chemicals, should it find that it does need current information on them. Alternatively, it could issue a chemical-specific section 8(a) rule for them, as it has previously noted in connection with the exemption for polymers.<sup>29</sup>

#### **4. The Potential Risks of the Pulping Mixtures Are Adequately Managed**

As described in Section III.1, kraft pulp mills are subject to extensive state and federal regulation, including regulation under the Clean Water Act and Clean Air Act. As a result, potential health and environmental risks associated with the generation and recycling of the four pulping chemicals are already well-managed.

In addition, the four pulping chemicals are unique in that they are generated solely in the context of a single manufacturing process that involves regeneration and reuse of the mixtures in that process. Since the entire purpose of the chemical recovery loop is to maximize the recovery, regeneration, and reuse of pulping chemicals, commercial considerations require pulp mills to be designed and operated in a way that minimizes the release of the pulping chemicals, and therefore, assures that they are adequately managed.

Another important consideration is that the four pulping chemicals are all alkaline corrosive materials that pulp mill operators necessarily must carefully manage to avoid damage to equipment or injury to workers. As a result, processing and use of the four pulping chemicals must be conducted in equipment that minimizes exposure to those mixtures. Along the same lines, the four pulping chemicals have the potential for strong odor because of the presence of reduced sulfur compounds. Pulp mills must be operated to avoid uncontrolled releases of these chemical substances to avoid releases that would harm workers and/or impact neighbors from an odor standpoint.

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<sup>29</sup> Partial Updating of TSCA Inventory Data Base; Production and Site Reports, 50 Fed. Reg. 9944, 9947 (March 12, 1985) ("In cases in which production volume and plant site data are needed for specific polymers, EPA could use the authority of a chemical-specific section 8(a) rule to obtain the information after those polymers have been identified.").

**5. A Full Exemption for the Pulping Mixtures Would Serve EPA Objectives**

Providing a full exemption for the four pulping chemicals under 40 C.F.R. § 711.6(a) would further EPA's oft-stated goal of implementing TSCA reporting requirements in a way that recognizes and encourages recycling and reuse of chemical substances and mixtures. The chemical recovery cycle in which the four pulping chemicals are processed and used represents a tremendous recycling success story. Approximately 95% of the pulping chemicals are recovered and reused in the pulping process. The burning of black liquor and black liquor, oxidized produces a major portion of the thermal energy required by a kraft pulp mill, replacing fossil fuel with carbon-neutral, renewable biomass.

This is exactly the type of situation that EPA has said it wants to encourage and recognize.<sup>30</sup> It can do so by exempting these recycled chemical substances from CDR reporting requirements.

**IV. A Partial Exemption Would Not Relieve the Unnecessary Burden on the Pulp and Paper Industry**

A full exemption from CDR requirements is needed to relieve pulp and paper manufacturers of the unjustifiable burden associated with collecting and reporting information on the four pulping chemicals. Although EPA has the ability to grant a partial exemption for them under 40 C.F.R. § 711.6(b)(2)(iii), such action would not result in relief for the pulp and paper industry. A partial exemption would excuse pulp mills from processing and use reporting requirements under section 711.15(b)(4). The focus of processing and use information is on the downstream use of a chemical. Because the great majority of the four pulping chemicals produced at a pulp mill are continually recycled on-site, pulp and paper manufacturers have relatively little to report on downstream processing and use. Further, because production and processing are combined in the same kraft chemical recovery process, information requested under section 711.15(b)(4) is also collected under section 711.15(b)(3), related to recycling.

Consequently, a partial exemption would not significantly reduce the time and costs invested each reporting cycle by pulp and paper manufacturers, at little benefit to EPA and other agencies. To adequately address the unnecessary burden imposed on the pulp and paper industry under the CDR, EPA should grant a full exemption from CDR requirements for the four pulping chemicals.

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<sup>30</sup> See, e.g., 76 Fed. Reg. at 50832-33 (indicating EPA's intent to examine collected information related to byproducts to determine whether CDR information for these chemical substances is needed). See also Section I.3.

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**CONCLUSION**

For the foregoing reasons, EPA should initiate a rulemaking to amend 40 C.F.R. § 711.6(a) to fully exempt the four pulping chemicals from CDR requirements under § 711.15 because it does not have a current need for CDR reports on those chemicals.

Thank you in advance for your consideration of this petition. For questions or comments on this petition, please contact my colleague Laurie Holmes at (202) 463-5174 or [Laurie\\_Holmes@afandpa.org](mailto:Laurie_Holmes@afandpa.org), and our outside counsel Mark Duvall of Beveridge & Diamond, P.C., at (202) 789-6090 or [MDuvall@bdlaw.com](mailto:MDuvall@bdlaw.com).

Sincerely,



Paul Noe  
Vice President, Public Policy  
American Forest & Paper Association

Attachment

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## Attachment A

### Publications Addressing the Use of White, Black, and Green Liquor in the Kraft Pulping Process

<b>No.</b>	<b>Title</b>	<b>Year</b>
1	<u>Final Revisions to the National Emission Standards for Hazardous Air Pollutants</u>	2012
2	<u>Draft Residual Risk Assessment for Pulp &amp; Paper Source Category</u>	2011
3	<u>Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Pulp and Paper Manufacturing Industry</u>	2010
4	<u>Technical Support Document for the Pulp and Paper Sector: Proposed Rule for Mandatory Reporting of Greenhouse Gases</u>	2009
5	<u>Technical Support Document for the 2008 Final Effluent Guidelines Plan</u>	2008
6	<u>Final Report: Pulp, Paper, and Paperboard Detailed Study</u>	2006
7	<u>Profile Of The Pulp And Paper Industry, 2ND Edition: Sector Notebook Project</u>	2002
8	<u>Pulping and Bleaching System NESHAP for the Pulp and Paper Industry: A Plain English Description</u>	2001
9	<u>Pulp And Paper Combustion Sources National Emission Standards For Hazardous Air Pollutants (NESHAP) Plain English Description</u>	2001
10	<u>Permit Guidance Document Pulp, Paper and Paperboard Manufacturing Point Source Category (40 CFR 430)</u>	2000
11	<u>Kraft Pulp Mill Compliance Assessment Guide (Includes CAA, CWA, RCRA and EPCRA)</u>	1999
12	<u>Pulp And Paper NESHAP Plain English Description</u>	1998
13	<u>Federal Register: April 15, 1998 Part 2, 40 CFR Parts 63, 261, and 430 National Emissions Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Effluent Limitations Guidelines; Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category; Final Rule</u>	1998
14	<u>Technical Support Document for Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control</u>	1997
15	<u>Supplemental Technical Development Document for Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard Category Subpart B (Bleached Papergrade Kraft and Soda) and Subpart E (Papergrade Sulfate)</u>	1997
16	<u>Pulp, Paper and Paperboard Industry - Background Information for Promulgated Air Emission Standards Manufacturing Processes at Kraft, Sulfite, Soda, SemiChemical, Mechanical, and Secondary and Non-wood Fiber Mills</u>	1997
17	<u>National Emission Standards for Hazardous Air Pollutants; Proposed Standards for Hazardous Air Pollutants from Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand Alone Semichemical Pulp Mills</u>	1997



18	<u>National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category, 40 CFR Parts 63, 261, and 430</u>	1997
19	<u>Technical Support Document: Chemical Recovery Combustion Sources at Kraft and Soda Pulp Mills</u>	1996
20	<u>Compilation of Air Pollutant Emission Factors, Volume I, Chapter 10: Wood Products Industry</u>	1995
21	<u>Profile of the Pulp and Paper Industry</u>	1995
22	<u>Pollution Prevention Assessment and Implementation at a Pulp and Paper Mill in the Pacific Northwest</u>	1995
23	<u>EIA Guidelines for Pulp and Paper and Timber Products : Environmental Impact Assessment Guidelines for New Source NPDES Permits : Pulp, Paper, and Paperboard and Timber Products Processing : Point Source Categories</u>	1994
24	<u>Water Quality Assessment of proposed Effluent Guidelines for the Pulp, Paper, and Paperboard Industry</u>	1993
25	<u>Pulp, Paper and Paperboard Industry Background Information For Proposed Air Emissions Standards Manufacturing Processes At Kraft, Sulfite, Soda and Semichemical Mills</u>	1993
26	<u>Proceedings: International Symposium on Pollution Prevention in the Manufacture of Pulp and Paper - Opportunities &amp; Barriers - August 18-20, 1992, Washington, D.C.</u>	1993
27	<u>Handbook on Pollution Prevention Opportunities for Bleached Kraft Pulp and Paper Mills</u>	1993
28	<u>Federal Register: December 17, 1993, Part 2. 40 CFR Parts 63 and 430. Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp, Paper, and Paperboard Category; National Emission for Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Proposed Rule</u>	1993
29	<u>Development Document for Proposed Effluent Limitations Guidelines and Standards for the Pulp, Paper and Paperboard Point Source Category</u>	1993
30	<u>Model Pollution Prevention Plan For The Kraft Segment Of The Pulp and Paper Industry</u>	1992
31	<u>Preliminary Data Summary for the Pulp, Paper and Paperboard Point Source Category</u>	1989
32	<u>Development Document for Best Conventional Pollutant Control Technology Effluent Limitations Guidelines for the Pulp, Paper and Paperboard and the Builders' Paper and Board Mills Point Source Categories, (Final)</u>	1986
33	<u>Kraft Pulp Mills Background Information for Promulgated Revisions to Standards</u>	1985
34	<u>Guidance Manual for Pulp Paper and Paperboard and Builders' Paper and Board Mills Pretreatment Standards</u>	1984
35	<u>Review Of New Source Performance Standards For Kraft Pulp Mills</u>	1983

36	<u>Development Document For Effluent Limitations Guidelines And Standards For The Pulp, Paper And Paperboard</u>	1982
37	<u>Development Document for Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard and...</u>	1980
38	<u>Toxicity of Pulp and Paper Mill Effluent: a Literature Review</u>	1979
39	<u>Preliminary Data Base for Review of BATEA Effluent Limitations Guidelines, NSPS, and Pretreatment Standards for the Pulp, Paper, and Paperboard Point Source Category</u>	1979
40	<u>Multimedia Assessment Of Pollution Potentials Of Non-sulfur Chemical Pulping Technology</u>	1979
41	<u>Method for determining potential odor contribution of selected kraft process streams</u>	1979
42	<u>Kraft Pulping Control Of TRS Emissions From Existing Mills</u>	1979
43	<u>Environmental Impact Assessment Guidelines for New Source Pulp and Paper Mills</u>	1979
44	<u>Screening Study on Feasibility of Standards of Performance for Two Wood Pulping Processes</u>	1978
45	<u>Draft Guideline Document: Control of TRS Emissions From Existing Kraft Pulp Mills</u>	1978
46	<u>Economic Impacts of Pulp and Paper Industry Compliance with Environmental Regulations: Volume III –Appendices to Volume I</u>	1977
47	<u>Standards Support and Environmental Impact Statement Volume 1 Proposed Standards of Performance for Kraft Pulp Mills</u>	1976
48	<u>Pulp And Paper Industry Part 1 Air (Oct 1976)</u>	1976
49	<u>Development Document For Interim Final And Proposed Effluent Limitations Guidelines And Proposed New Source Performance For The Volume 1 Segment Of The Pulp, Paper &amp; Paperboard</u>	1976
50	<u>Development Document For Effluent Limitations Guidelines (BPCTCA) For The Bleached Kraft, Groundwood, Sulfite, Soda...</u>	1976
51	<u>Indigester Black Liquor Oxidation for Odor Control in Kraft Pulping</u>	1974
52	<u>Development Document for Proposed Effluent Limitations Guidelines and New Source Performance Standards for the Unbleached Kraft and Semichemical Pulp Segment of the Pulp, Paper and Paperboard Mills Point Source Category</u>	1974
53	<u>Development Document For Effluent Limitations Guidelines For: Unbleached Kraft &amp; Semichemical Pulp</u>	1974
54	<u>State-of-the-Art Review of Pulp and Paper Waste Treatment</u>	1973
55	<u>Kraft Pulping Effluent Treatment and Refuse : State of the Art</u>	1973
56	<u>Atmospheric Emissions From The Pulp and Paper Manufacturing Industry</u>	1973
57	<u>Air Pollution Aspects of Emission Sources: Pulp and Paper Industry - a Bibliography With Abstracts</u>	1973
58	<u>Reverse Osmosis Concentration Of Dilute Pulp and Paper Effluents</u>	1972
59	<u>Draft Second Report on Waste Profiles of the Paper Industry</u>	1971
60	<u>Record for Establishment of BCT, BAT, NSPS, PSES, and PSNS for the</u>	1970

	<u>Pulp, Paper, and Paperboard Industry Point Source Category</u>	
61	<u>Control of Atmospheric Emissions in the Wood Pulping Industry: Final Report Volume 1</u>	1970
62	<u>Control of Atmospheric Emissions in the Wood Pulping Industry: Final Report Volume 3</u>	1970
63	<u>Control of Atmospheric Emissions in the Wood Pulping Industry: Final Report Volume 2</u>	1970
64	<u>Air Pollution and the Kraft Pulping Industry: an Annotated Bibliography</u>	1963

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