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**Uruguay's Response to Judge Bennouna's Question**

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**La question de juge Bennouna :**

**Quel procédé et quel produit sont utilisés par l'usine Botnia pour son nettoyage ?**

**Judge Bennouna's question:**

**What process and what products are used by Botnia plant for its cleaning?**

In response to Judge Bennouna's question, Uruguay respectfully submits and adopts the testimony of Gervasio González Simeonoff, as recorded in the attached affidavit dated 30 September 2009.

Uruguay reserves its right to supplement this response on or before 18:00 hours of 9 October 2009.

Statement of Mr. Gervasio González

I, Gervasio González Simeonoff, declare as follows:

1. I received my degree in chemical engineering from the University of Uruguay and completed postgraduate studies in modern technology in the pulp and paper industry at the Helsinki University of Technology. I am currently the Environmental Manager at the pulp mill owned and operated at Fray Bentos by Oy Metsä-Botnia Ab ("Botnia"). As such, I am Botnia's lead environmental scientist with respect to the environmental impact of the mill.
2. I understand that Argentina contends that the Fray Bentos mill is discharging nonylphenols into the River Uruguay. Argentina appears to allege that Botnia is using substances containing nonylphenols as industrial cleaners, in order to clean the pulp during the pulp washing and cleaning processes or to clean the mill's equipment. To the contrary, the Fray Bentos mill does not use and has never used—since the very first day of operations—nonylphenols or nonylphenol derivatives in any of its processes for the production of pulp, including in the pulp washing and cleaning stages, and no cleaning agents containing nonylphenols are or have been used for cleaning the plant's equipment.
3. At the Fray Bentos mill, the process employed is the Kraft process, which, generally speaking, involves removal of lignin (the "glue" that holds the wood fibers together) from the wood chips in large pressure vessels called digesters. The mix of pulp and liquid produced during this digestion process is called "brown stock," which is then subjected to in-digester washing followed by several washing stages that separate the pulp from the liquor, and progressively clean the pulp by removal of cooking chemicals, cooking chemical residues, and other substances such as "extractives," including "lipophylic extractives", which are fatty acids and other naturally-occurring compounds that need to be removed to ensure high-quality pulp. After the washing process, the pulp fibers are bleached, dried into sheets, and shipped to customers to make paper.
4. Removal of extractives from the wood during the pulp washing and cleaning stages does not require the use of chemicals containing nonylphenols or its derivatives in a modern mill such as the Fray Bentos mill. The Fray Bentos mill complies with the European Union's Best Available Techniques ("EU BAT") for all processes at the mill, including the wood handling process. Botnia requires its suppliers to provide wood that has already been debarked at the forest plantations. Any remaining bark loosely attached to the logs is removed by mechanical means during the conveying process of the logs to the chipper. This process, which has been in effect



since the beginning of operations, minimizes the bark residue in the wood chips, which in turn minimizes the amount of wood-based extractives that go into the pulping process.

5. During the pulp washing and cleaning stages, depositing of extractives at the Fray Bentos mill is prevented through an efficient brown stock washing process that uses a surfactant, or washing agent, called the BIM AF 4151. The purpose of surfactants (like BIM) in the brown stock washing process of the modern mill is to improve washing by facilitating the penetration of the washing water/liquor into the pulp. This is because surfactants help to remove air out of the washing water/liquor. Extractives removed from the pulp during the washing end in the "black liquor," which is the liquid resulting from the washing process. This black liquor is concentrated by evaporation and burned in the recovery boiler to produce energy to sustain the mill processes. As a result, neither the black liquor, nor the chemical residues nor extractives contained in it, end up in the effluent. I have attached to my statement a certificate from the manufacturer of the BIM AF 4151, which confirms that it does not contain nonylphenol or its derivatives. There are no other surfactants or cleansers used during the pulp washing or cleaning stages, or in any "boil outs" for cleaning purposes, or in the pulp storage tanks as dispersing agents to prevent depositing.
  
6. Any problems related to depositing of extractives on mill equipment that might be caused by remaining extractives not washed from the pulp are controlled in the bleaching process through the use of a small amount of talc, which avoids agglomeration of the extractives particles. This means that the extractives do not stick in the pipelines or pulp towers and there is therefore no need for extra washing. No surfactants are used to clean pipes or equipment. Instead, acids, such as sulfamic acid, are sometimes used as cleansers, as the deposits are mainly of an inorganic nature and not from depositing of extractives. On occasion, a surfactant called "211" is applied to a cloth and used to clean fuel oil from the equipment as needed. The only other surfactants that are or have been used at the Fray Bentos mill are two PROFLOC polymers, which are used to cause particles to stick together for easier disposal during the water and effluent treatment stages. I have attached specifications of these three agents: (1) PROFLOC 1408, which is used to cause particles (mainly fiber, sand, dirt) in the sludge removed from primary effluent treatment to stick together for easier disposal; (2) PROFLOC 2903, which is used to separate and allow for easier disposal of particles in the treatment of the raw water taken from the river; and (3) the active agent of surfactant 211 described above, known as Ionrex AG 165. As these specifications confirm, none of these chemical agents contain nonylphenols or its derivatives.

7. The washing and cleaning processes used at the Fray Bentos mill that I describe above have been consistently and uniformly in effect since the very first day of operations. All of the processes at the mill, including these washing and cleaning processes, are fully compliant with the EU BAT, and indeed, use even more modern, more environmentally-advanced technology than all of Botnia's Finnish mills in the European Union. Meeting all requirements for EU BAT is particularly important for the Fray Bentos mill, since its markets are primarily countries in the EU, mainly Germany and to a lesser extent the United Kingdom, Italy, Finland, and Belgium.

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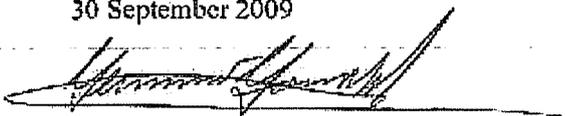
8. I also understand that the question has arisen as to whether chlorinated lindane is used as a pesticide for wood preservation at the Fray Bentos mill. Neither the Fray Bentos mill nor the eucalyptus plantations that supply the mill use lindane as a pesticide for wood preservation, or for any other processes that take place at the mill. In fact, no chemical product is used for wood preservation either at the mill or the eucalyptus plantations.

\* \* \*

I declare under penalty of perjury that the foregoing is true and correct.

Fray Bentos, Uruguay

30 September 2009



Gervasio Gonzalez  
Environmental Manager, Fray Bentos Mill



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**PRODUCT CERTIFICATE FOR BIM AF 4151**

*BIM AF 4151 is a specialty foam control agent for the pulp & paper industry. It is a water mixture of glycols, silicones and tensides. - The product do not consist any nonyl phenyl ethoxilates.*

Date: Kouvola 10.07.2009

A handwritten signature in black ink, appearing to read 'Ulf Smeds', written in a cursive style.

Ulf Smeds  
Production Manager  
BIM Finland Oy

# PROFLOC<sup>®</sup> 1408

## Cationic Flocculant

PROFLOC<sup>®</sup> 1408 is a high molecular weight cationic, high charge density emulsion polymer. This product is designed to enhance liquid/solid separation in a wide variety of industrial applications. PROFLOC<sup>®</sup> 1408 has been successfully applied to all liquid/solids applications, including clarification, thickening, and sludge dewatering.

No alkyl phenol ethoxylates (APE or NPE) are used in the manufacture of this product, therefore PROFLOC<sup>®</sup> 1408 can be considered phenol free.

### Application

PROFLOC<sup>®</sup> 1408 is a single component emulsion polymer that must be pre-diluted with water prior to use. In most cases, this product should not be fed neat. Positive displacement pumps (gear or progressive cavity) are recommended for this product. Many commercial systems are available to prepare solutions of polymer via in-line dilution and mixing. One manual method for dilution is to add the neat product into the vortex of a mixed tank at the recommended concentration.

Recommended solution preparation concentrations should be between 0.5 - 1.0%, regardless of polymer preparation equipment utilized. Polymer solutions should be aged for a minimum of 30 minutes prior to use. Shelf life of solutions is 8-16 hours. Secondary dilution to 0.05 - 0.1% before the application point can improve product performance.

### Delivery

All Kemira products are available for shipment in a variety of containers. For further details, contact your local Kemira Technical Sales Representative.

## Product Safety

Please refer to the product material safety data sheet for more instructions.

## Product Properties

Characteristics	opaque, off-white emulsion
Density	8.7 ± 0.1 lbs/gal
Viscosity	400 - 1,200 cps
Freezing Point	0°F

## Storage

PROFLOC<sup>®</sup> 1408 should be stored between 40 and 90°F and protected from freezing. If freezing occurs, the product should be warmed to 40 - 90°F and agitated prior to subsequent use. The shelf life of PROFLOC<sup>®</sup> 1408 is at least six months in unopened containers.

Product rotation is recommended to avoid prolonged storage times. A very slight separation will occur upon standing, as noted by a clear upper layer of oil. Containers should be mixed prior to first use and weekly thereafter. Bulk storage tanks should be mixed either by a mechanical mixer or by recirculation.

# PROFLOC<sup>®</sup> 2903

## Anionic Flocculant

PROFLOC<sup>®</sup> 2903 is a high molecular weight anionic emulsion polymer. This product is designed to enhance solid/liquid separation in a wide variety of industrial water and wastewater applications. It has proven effective in clarification, thickening and dewatering.

### Application

PROFLOC<sup>®</sup> 2903 is a single component emulsion polymer that must be pre-diluted with water prior to use. In most cases, this product should not be fed neat. Positive displacement pumps (gear or progressive cavity) are recommended for this product. Many commercial systems are available to prepare solutions of polymer via in-line dilution and mixing. One manual method for dilution is to add the neat product into the vortex of a mixed tank at the recommended concentration. Recommended solution preparation concentrations should be between 0.5 - 1.0%, regardless of polymer preparation equipment utilized. Polymer solutions should be aged for a minimum of 30 minutes prior to use. Shelf life of solutions is 8-16 hours. Secondary dilution to 0.05 - 0.1% before the application point can improve product performance. Assistance in properly selecting and applying polymer treatment programs can be supplied by your local Kemira technical sales representative.

### Delivery

PROFLOC<sup>®</sup> 2903 is supplied in drums, tote bins, and bulk. Contact your Kemira technical sales representative for specific container information.

### Product Safety

A material safety data sheet for this product should be obtained prior to use.

## Regulatory Status

PROFLOC<sup>®</sup> 2903 is manufactured in accordance with the following 21 CFR as set forth by the Food and Drug Administration:

- 21 CFR 176.110 food additive used in the manufacture of paper and paperboard
- 21 CFR 176.170 components of paper and paperboard in contact with aqueous and fatty foods
- 21 CFR 176.180 components of paper and paperboard in contact with dry foods

No alkyl phenol ethoxylates (APE or NPE) are used in the manufacture of this product, therefore PROFLOC<sup>®</sup> 2903 can be considered phenol free.

## Product Properties

Characteristics	opaque, off-white emulsion
Density	8.9 ± 0.1 lbs/gal
Viscosity	400 – 1,200 cps
Freezing Point	0°F

## Storage

PROFLOC<sup>®</sup> 2903 should be stored between 40 and 90°F and protected from freezing. If freezing occurs, the product should be warmed to 40 - 90°F and agitated prior to subsequent use. The shelf life of PROFLOC<sup>®</sup> 2903 is at least six months in unopened containers. Product rotation is recommended to avoid prolonged storage times.

**IONREX<sup>®</sup> AG 165**

**Descrição do Produto:**

Álcool Graxo Etoxilado.

**Dados Típicos:**

CARACTERÍSTICAS	DADOS TÍPICOS
Aspecto	líquido claro e ligeiramente turvo
Caráter Iônico	não iônico
pH	7
Concentração	90 %

**Principais Características e Propriedades:**

Ionrex AG 165 é um álcool graxo etoxilado com uma média de aproximadamente 6,5 moléculas de óxido de etileno, por molécula de álcool.

Tem um amplo campo de aplicação em todo tipo de indústria. De acordo com as suas características, pode substituir nas formulações o nonilfenol etoxilado, com a vantagem de ser mais rapidamente biodegradável.

**Edição: Julho 2007**

As especificações e recomendações contidas neste boletim técnico baseiam-se nos testes realizados em nossa empresa, as quais poderão sofrer modificações e resultados diferentes, dependendo da sua aplicação. Este folheto terá validade até uma nova edição.  
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