



From Liability to Asset

The J.D. Irving Agricultural Wood Ash Program

RESIDUAL

Wood Ash from biomass boiler combustion

COMPANY

J.D. Irving is a privately owned company headquartered in Saint John, New Brunswick Canada. They are involved in many industries including forestry, forest products, food processing, agriculture, transportation and shipbuilding. They are committed in protecting the environment by reducing their footprint and evaluating the opportunity for beneficial reuse of their waste streams.

One of their most beneficial re-use programs in New Brunswick and Nova Scotia is their agricultural wood ash program. The wood ash consists of combusted wood material from bark, wood chips and sawdust, all by-products of generating energy.



THE CHALLENGE

In the past, J.D. Irving would send approximately 18,000 tonnes of wood ash to landfills. This was a high-cost measure that did not contribute to their goal of reducing their environmental footprint. In 2003, the company decided to make better use of their wood ash, exploring the potential of agricultural application to improve soil health. Right away, they identified two challenges:


PROVINCIAL APPROVAL PROCESS: there was a cost and administrative burden required to obtain an approval for each location the ash would be applied.

LIMITED END-USE EXPERIENCE: J.D. Irving worked with local trucking companies to run the ash to participating farms, but neither the company nor the truckers had agricultural training or experience. They lacked understanding of what aspects of the ash were essential, and of the necessity that the ash was delivered exactly on time. The truckers' fees were inconsistent, with unreliable timelines. If farmers did not receive the ash at the right moment, they had to cancel their order. Further, costs began to rise, with repeat deliveries, with only a small portion of the ash put to use.





THE SOLUTION

 Irving Wood Ash / Cendres de bois d'Irving JAN 0 6 2020 0 - 0.9 - 2.2	
Manufacturer/Fabricant: Irving Pulp & Paper, Limited, 408 Mill Street, PO Box 3007 Saint John, NB E2M 3H1 Manufacturer/Fabricant: Scierie Grande Rivière Inc., PO Box 2180, St. Leonard, NB E7E 2M7	
Batch Number / Numéro de série :	Gross Weight / Poids brut : _____ kg
Date :	Time :
Time / Heure :	Net Weight / Poids net : _____ kg
Note: In the case of a discrepancy between the net weight on this label and the net weight on the scale ticket, the scale ticket weight shall rule. Remarque: En cas d'écart entre le poids net sur cette étiquette et le poids net sur le billet de pesage, le poids du billet de pesage constituera la référence.	
Lot# / Numéro de série : C1 - Irving Pulp and Paper Mill / Usine de pâte et papier d'Irving C2 - St. Leonard Sawmill / Scierie de Saint-Léonard	
Product Name: Irving Wood Ash 0 - 0.9 - 2.2 Registration number: 20100202 Fertilizers Act	Nom du produit: Cendres de bois Irving 0 - 0.9 - 2.2 Numéro d'enregistrement: 20100202 Loi sur les engrais
Product Description: Irving Wood Ash from Irving Pulp & Paper and St. Leonard is produced from a biomass boiler that produces steam and/or energy. The burned wood material consists of bark, wood chips and sawmill residue and is generated as residue from tree harvesting, sawmill operations, or manufacturing of wood products.	Description du produit : Le cendre de bois d'Irving de l'usine de pâte et papier d'Irving de la scierie de Saint-Léonard est produit à partir d'une chaudière à biomasse qui produit de la vapeur et/ou de l'énergie. Le résidu de bois brûlé se compose d'écorce, de copeaux de bois et de résidu de bois, des résidus de la récolte des arbres, de l'exploitation des scieries ou de la fabrication de produits du bois.
Guaranteed Minimum Analysis: Available Phosphoric Acid (P ₂ O ₅) 0.9% Soluble Phosphorus (P ₂ O ₅) 2.2% Calcium (Ca) 5.5% Magnesium (Mg) 0.7% Neutralizing Value (CaCO ₃ Equivalency) 24% Tyler Screen 100-mesh (0.149mm) 82% Tyler Screen 10-mesh (1.68mm) 21%	Analysis des minimums garantis : Acide phosphorique assimilable (P ₂ O ₅) 0.9 % Phosphore soluble (P ₂ O ₅) 2.2 % Calcium (Ca) 5.5 % Magnésium (Mg) 0.7 % Valeur neutralisante (Équivalence CaCO ₃) 24% Tyler Screen 100-mesh (0.149mm) 82% Tyler Screen 10-mesh (1.68mm) 21%
Directions for Use: Wood ash provides phosphoric acid, soluble potash, calcium, and magnesium to soils. Apply to slightly acidic soils for agricultural and silvicultural use. Maximum dry matter application rate for this product is 7500 kg per hectare annually. This product should be used as part of a complete fertility and liming program. The responsible applicator should consult with a Professional Agronomist to determine appropriate application rates based on a soil testing program.	Mode d'emploi : Le cendre de bois fournit de l'acide phosphorique, de la potasse soluble, du calcium et du magnésium aux sols. Appliquez sur des sols légèrement acides à des fins agricoles ou sylvicoles. Le taux maximal d'application de la cendre sèche pour ce produit est de 7 500 kg par hectare et par an. Ce produit doit être utilisé dans le cadre d'un programme complet de fertilité et de chaulage. L'opérateur responsable doit consulter un agronome professionnel pour déterminer les taux d'application appropriés en fonction d'un programme d'analyse du sol.
Personal Protective Equipment for Using and Handling this Product: Wear long-sleeved shirt, long pants extending over the tops of work boots, work gloves and eye goggles. A NIOSH approved dust respirator is recommended for use when applying this product. Wash hands thoroughly after use.	Équipement de protection du personnel pour l'utilisation et la manipulation de ce produit : Porter une chemise à manches longues, un pantalon long qui s'étend sur le dessus des bottes de travail, des gants de travail et des lunettes de sécurité. Un masque anti-poussières approuvé par le NIOSH est recommandé pour l'utilisation lors de l'application de ce produit. Se laver soigneusement les mains après l'utilisation.
License No./N° de permis : Driver/Chauffeur : Destination (Farm/agriculture) :	Trailer No./N° de la remorque : Carrier/Transporteur : Cheminements :

In 2004, J.D. Irving obtained a Canadian Food Inspection Agency (CFIA) federal fertilizer label. This registered the ash as a fertilizer product, taking their ash out of waste stream regulations.

The ash met all the criteria for federal fertilizer and was no longer required to be sent to the landfill. However, the company still had an experience gap.

In 2010, J.D. Irving hired an agricultural consulting company

(LP Consulting), who had the expertise to both market the ash profitably, and to work with farmers to increase crop production. The consultants made a plan to follow-through on the 'win-win' of wood ash, bringing booths and displays to farm meetings, hosting demonstration tour days in farmer's fields, getting ash approved for organic products, and incorporating it into their crop management programs.

By 2012, 100% of the ash was booked for beneficial use. By 2014, it was booked three years ahead of production, a level of enthusiasm which continues to this day. If J.D. Irving could produce four times as much ash, there would still be an agricultural waiting list.

BENEFITS

COST SAVINGS

J.D. Irving no longer has the cost for landfill tipping fees and trucking.

POSITIVE, 'WIN-WIN' PUBLIC IMAGE BOOST

Partnering with the agricultural community to help them improve soil health and increase climate change resiliency

PARTICIPATION IN THE GREEN ECONOMY

By providing local sustainable nutrients and organic matter that offsets fossil fuel products mined and imported from other countries

TRANSFORMING A COST INTO PROFIT

By turning the liability of waste into an asset, Irving has not only reduced operational costs but potentially created a revenue stream. The company is exploring further carbon credit opportunities for redirecting their industrial by-products as inorganic fertilizer.

