



## Get the Facts on Stone Paper

### Life Cycle Environmental Impact

While the manner in which a product is recycled or degraded is an important consideration, the true environmental impact of a product can only be measured by combining the environmental impact at every stage of its life cycle, from raw material extraction through manufacturing, use and disposal. **In this one true measure of environmental impact, Stone Paper excels.**

#### Raw Material Extraction:

<b>Stone Paper</b>	<b>Virgin Wood Fibre Paper</b>	<b>Recycled Wood Fibre Paper</b>
<ul style="list-style-type: none"> <li>• Primarily Calcium Carbonate, one of the most common resources on earth.</li> <li>• Calcium Carbonate is a by-product of rock quarry operations, and as such there is no incremental environmental footprint for extraction.</li> <li>• Environmental impact is limited to loading and transport.</li> <li>• The binding agent is high density polyethylene (HDPE), a non-toxic resin.               <ul style="list-style-type: none"> <li>▪ PE concentrations range from 20% for paper to 40% for board.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Renewable, but long growth cycle (20 to 40 years depending on species).</li> <li>• Mature trees release stores of carbon when harvested (a greenhouse gas).</li> <li>• Falling, extracting, and transporting trees to mills involve several environmentally damaging processes.</li> <li>• 1 ton of paper requires 20 mature trees.               <ul style="list-style-type: none"> <li>➤ 20 mature trees release enough oxygen to support 40 people.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• No raw material extraction for 100% recycled paper products.               <ul style="list-style-type: none"> <li>➤ Many products marketed as containing recycled fibres are only partially comprised of recycled fibres.</li> </ul> </li> </ul>

**Production:**

Stone Paper	Virgin Wood Fibre Paper	Recycled Wood Fibre Paper
<ul style="list-style-type: none"> <li>• To produce 1 tonne of paper:               <ul style="list-style-type: none"> <li>➤ 0.6 tonnes of CO<sub>2</sub> emissions.</li> <li>➤ 0 tonnes of solid waste.</li> <li>➤ No water utilized.</li> <li>➤ 3 million BTU's of energy                   <ul style="list-style-type: none"> <li>▪ 1 month usage for an average residential customer.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• To produce 1 tonne of paper:               <ul style="list-style-type: none"> <li>➤ 1.5 tonnes of CO<sub>2</sub> emissions.                   <ul style="list-style-type: none"> <li>▪ Excludes CO<sub>2</sub> stored in the trees</li> </ul> </li> <li>➤ 0.15 tonnes of solid waste.</li> <li>➤ 15,600 gallons of water.                   <ul style="list-style-type: none"> <li>▪ 39 days of water for an average family of four in the US.</li> </ul> </li> <li>➤ 19 million BTU's of energy                   <ul style="list-style-type: none"> <li>▪ 6 to 7 months usage for an average residential customer.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• To produce 1 tonne of paper:               <ul style="list-style-type: none"> <li>➤ 1.4 tonnes of CO<sub>2</sub> emissions.</li> <li>➤ 0.19 tonnes of solid waste.</li> <li>➤ 5,800 gallons of water.                   <ul style="list-style-type: none"> <li>▪ 14.5 days of water for an average family of four in the US.</li> </ul> </li> <li>➤ 18 million BTU's of energy                   <ul style="list-style-type: none"> <li>▪ 6 to 7 months usage for an average residential customer.</li> </ul> </li> </ul> </li> </ul>

**Use:**

- *Although the use of a paper product does not in and of itself have an environmental impact, the selection of the product best suited for the application can result in lower product volume requirements, which has a significant environmental impact!*

Stone Paper	Virgin Wood Fibre Paper	Recycled Wood Fibre Paper
<ul style="list-style-type: none"> <li>• Lack of absorbency and tear resistancy makes it ideal for applications where moisture or humidity is present, resulting in lower volume usage in those applications.</li> <li>• Not suitable for applications where absorbency is required (e.g. paper towels or toilet paper).</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for most paper applications.</li> <li>• Absorbent characteristic makes it sub-optimal for outdoor applications where moisture or humidity is present. This leads to higher volume requirements as products are replaced (e.g. blueprints), or the need to apply waterproof coatings that introduce an entirely new environmental impact.</li> </ul>	<ul style="list-style-type: none"> <li>• Suitable for most paper applications.</li> <li>• Absorbent characteristic makes it sub-optimal for outdoor applications where moisture or humidity is present. This leads to higher volume requirements as products are replaced (e.g. blueprints), or the need to apply waterproof coatings that introduce an entirely new environmental impact.</li> </ul>

## Disposal:

<b>Stone Paper</b>	<b>Virgin Wood Fibre Paper</b>	<b>Recycled Wood Fibre Paper</b>
<ul style="list-style-type: none"><li>• As volumes increase and a separate recycling stream is created, Stone Paper can be recycled into new Stone Paper, with a recovery rate of 98 – 100%.</li><li>• Until usage increases, Stone Paper should ideally be recycled with #2 plastics, to recapture the small portion of HDPE.</li><li>• At current production levels (less than 1/10 of 1% of the overall paper market), Stone Paper can be recycled through the standard paper stream, as calcium carbonate is a naturally occurring inert substance that serves as a filler rather than a contaminant.<ul style="list-style-type: none"><li>▪ The presence of HDPE is not a concern at these volumes, as recycled paper production processes already remove the small volumes of plastic that exist in certain paper streams (wax or film coated papers, some bags, etc.)</li></ul></li><li>• Paper that ends up in municipal incinerators releases low volumes of pollutants and greenhouse gases.<ul style="list-style-type: none"><li>▪ Resulting ash can be used as a raw material input in the production of fertilizers and cement.</li></ul></li><li>• Paper that ends up on the ground or in the landfill, will photodegrade.</li></ul>	<ul style="list-style-type: none"><li>• Recycled through standard paper streams.</li><li>• Paper that ends up in municipal incinerators releases high volumes of CO<sub>2</sub>, a powerful greenhouse gas.</li></ul>	<ul style="list-style-type: none"><li>• Recycled through standard paper streams.</li><li>• The recycling process shortens the wood fibre. As such, wood-fibre based paper can be recycled a maximum of 5 to 7 times, after which the pulp is automatically expelled from the process.<ul style="list-style-type: none"><li>➤ Recycled wood fibre paper production is not a closed loop process! New virgin wood fibre paper must always be added to the product stream to replace the expelled short fibres.</li></ul></li><li>• Paper that ends up in municipal incinerators releases high volumes of CO<sub>2</sub>, a powerful greenhouse gas.</li></ul>

## Environmental Certifications

➤ To date, Stone Paper has applied for and received the following environmental certifications:



New Zealand Environmental Choice Certification in two categories:

- \* Office Paper & Stationery
- \* Packaging & Paperboard



Cradle to Cradle Certified<sup>CM</sup>  
Silver

Cradle to Cradle Certification, covering all aspects of a product's life cycle.



Certifies that stone paper does not contain any chemicals, heavy metals, or minerals that are known to be dangerous to humans or the environment.

\* ***Note that Stone Paper contains no wood fibre and therefore has no impact on forests. As such, FSC and other forest management certifications achieved by some wood fibre paper products are not applicable to Stone Paper.***

