

INFORMATION SHEET

LAMINATED/COATED/SILICONISED PAPER RECYCLING TECHNOLOGY

USING ENZYME BASED SEPARATION TECHNOLOGY

Background.....Virgo Environmental Technologies Ltd (www.virgo-et.com) is the European Partner of Flexoresearch (www.flexoresearch.com), a Thai based Paper Recycling Technology company, whose ground breaking technology has won the CEO and inventor of the process, Mr Paijit Sangchai, the World Economic Forums coveted accolade of Technology Pioneer 2011 Award. Such is the importance of this technology, it has been covered by high profile media organizations such as TIME Magazine, Bloomberg and CNN.

What it does.....The enzyme technology breaks the bond between paper and many types of other materials such as polyethylene, polypropylene, wax and silicon. This enables the complete separation of materials so that the constituents can be recycled instead of going to landfill or incineration. The enzyme can neutralize many different types of adhesive, many of which are used in many paper or cardboard manufacturing processes.

The Process.....There are currently four recycling plants in Asia and Africa which have introduced this enzyme technology, with the first pilot plant being commissioned five years ago in 2007. Since then many modifications and improvements have been made, so that the process can be adapted, depending on the type of material to be recycled to produce maximum efficiencies in both material yield and speed and therefore the cost of the process. The outstanding performance of this process in these two key areas makes the process not only financially viable but in fact very attractive.

Target Materials.....Examples of materials which can be efficiently recycled using this process are silicon release liners, heavy duty laminated sacks such as cement or feed sacks, high volume laminates such as sandwich boxes, all types of beverage and liquid food containers and label back liners. All high volume laminated paper products can be analysed and a specific enzyme solution developed to facilitate separation and the reintroduction of the valuable raw materials into the manufacturing cycle.

Feedstock Collection Systems.....The material collection system is vital in Europe to provide enough quality feedstock for this process. Virgo is partnering with existing recycling companies and Waste Management Service Providers throughout Europe to secure supply lines for this type of hitherto impossible to recycle material.

Industry Partners.....recycling companies who already recycle this type of material will benefit immediately and effectively from this technology, as it will produce much higher yields and therefore be more profitable using their current feedstock. However, the real advantage is that they will be able to upscale by collecting and processing much higher volumes of material which up until now could not be recycled. For Waste Management Service Providers, Virgo's first Laminated Paper Recycling Facility in Europe will be commissioned in 2012 in Wales, United Kingdom.

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