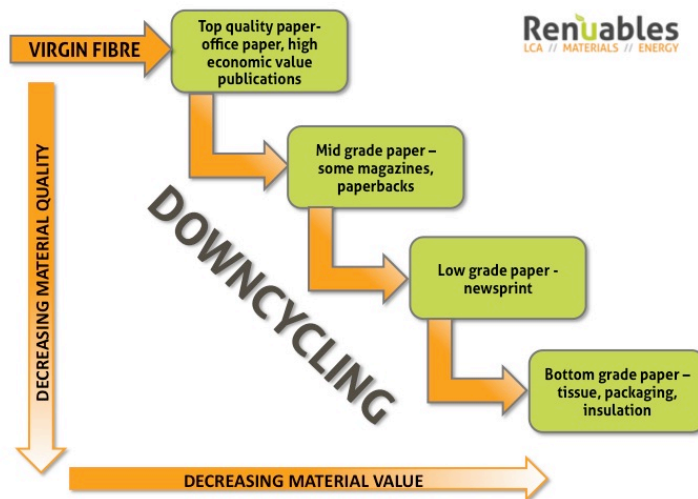


Introduction to Cascading

In order to make the most efficient use of materials, cascading is the preferred option. Cascading is used where material quality decreases with recycling. Some materials such as metals and glass recycle well and there is no loss of quality in the recycled material. Others, such as polymers and paper are degraded by the recycling process and are usually unfit for use in higher quality products. Such materials are 'downcycled' rather than recycled. The recycling of paper is a good example of the cascading concept.



The very best quality paper is usually produced using chemical pulping of wood, yielding strong fibres that can be bleached to a very high level of brightness. This type of paper is used for office grade paper and for very high quality publications that have a long lifetime; it also forms a component of magazine grade paper. When paper is recycled, the fibres are damaged and it is more difficult to achieve such high levels of brightness and strength, so that

recycled fibres are normally used for lower grade short life application such as newspapers; although they may make up some of the composition of magazine grade paper. It is possible to produce high grade papers from very high grade recycled paper, but it is essential that the whole recycling system has a virgin fibre input or the quality of paper in the whole chain would inevitably decline. Lowest grade fibres are used to make tissue or can be used for insulation. Recycling returns fibres to the paper-making process and it is not possible to know how many times each individual fibre has been recycled. The whole process of downcycling (also called open-loop recycling) represents a materials cascade with the top quality virgin fibres being at the top of the cascade and the lowest quality insulation fibres being at the bottom, with final disposal being incineration with energy recovery. This is the most efficient way of using materials that degrade with use, or due to the recycling process.

For more information contact us at renuables.co.uk