

PAPER AND BRIGHTNESS

Information provided by Steinbeis Papier GmbH

Recycled paper with low brightness is the leader in terms of sustainability. Its high opacity and natural hue are comparable to a classic yellowish-white book paper and thus provide an equally pleasant reading experience. The contrast between the paper and print is virtually glare-free. The quality and functionality are as good as paper with higher brightness. At the same time, this kind of paper is generally less expensive than virgin fibre paper.

BRIGHTNESS OF RECYCLED PAPER

- > Recycled paper with the Blue Angel ecolabel is made from 100% waste paper. Waste paper comes in various types and qualities. According to the Blue Angel specifications, at least 65% must come from lower grade (e.g. sorted household paper) and medium grade (e.g. waste office paper) waste paper that have low initial brightness themselves. Since the use of optical brighteners is prohibited by the Blue Angel criteria, the brightness of the recycled paper is essentially determined by the quality of the preselected waste paper and its initial brightness.
 - > The above-mentioned lower and medium grade waste paper types are predominantly used for recycled paper with low brightness (ISO 2470: 80% and below). The recycling of these qualities is akin to upcycling. Lower and medium grades account for the largest percentage of waste paper produced. Feeding it back into the cycle for material recycling therefore makes the biggest contribution to the sustainable use of these resources.
 - > So-called 'better' waste paper types are used to make recycled paper with higher initial brightness. If recycled paper is nonetheless made in accordance with the Blue Angel criteria, the percentage of these better types may be no higher than 35%. There is only limited availability of these better waste paper qualities on the market. As in the case of virgin fibre paper, optical brighteners are also generally used to make recycled paper without the Blue Angel ecolabel in order to increase the brightness. They are not especially biodegradable, nor do they contribute to the paper's actual suitability for use.
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DETERMINING THE BRIGHTNESS

Graphic paper is available in various levels of brightness. The brightness itself can be determined with the aid of measuring devices and different standards that enjoy equal weighting:

ISO 2470 – ISO BRIGHTNESS

The ISO brightness of a paper sample at an effective wavelength of 457 nm using a D65 light source (daylight). Prior to the development of the high-resolution spectrophotometer, this kind of rating was the most widely used standard to determine the brightness and is still commonly used today. The measured value is stated as a percentage.

ISO 11475 – CIE WHITENESS

In contrast to ISO 2470, using the same D65 light source (daylight), CIE whiteness includes the entire spectrum visible to the human eye (wavelength range = 400–700 nm) in its rating formula. Since CIE whiteness thus comes very close to the human eye's perception of brightness, paper samples with different levels of whiteness can be compared with each other very well on the basis of this whiteness. The high sensitivity of the eye in the 'blue' wavelength range results in very high CIE whiteness for papers with a strong bluish-white appearance. The measured CIE whiteness is dimensionless.

The measured values of both standards cannot be directly compared with one another or converted.