

Microplastics in printing inks and printed products

In 2019, the European Chemicals Agency (ECHA) has published an Annex XV Restriction Proposal for intentionally added microplastics. According to that restriction proposal, microplastics are very broadly defined as: “a material consisting of solid polymer-containing particles, to which additives or other substances may have been added, and where $\geq 1\%$ w/w of particles have (i) all dimensions $1\text{nm} \leq x \leq 5\text{mm}$, or (ii), for fibres, a length of $3\text{nm} \leq x \leq 15\text{mm}$ and length to diameter ratio of >3 ”.

A public consultation on this restriction proposal ended on 20th September 2019. The regulatory process of the ECHA proposed restriction is still open since ECHA could modify the text and scope of the restriction as an outcome of the public consultation. In any case, the proposed restriction does not currently have legal value.

In the manufacture of certain printing inks and printing varnishes (especially water-based), polymer dispersions and/or polymer solutions are used, which fall under the proposed definition of microplastics. These polymers do either serve as film-forming components of the binder, or as waxes (e.g. polyethylene waxes) imparting mechanical resistance to the dried ink or varnish film.

Printing inks and varnishes are industrial mixtures. Consequently, they do not fall under the restriction for the placing on the market of products containing microplastics, according to the current ECHA proposal. Moreover, they are manufactured in industrial installations, which already implement systems and procedures, as required by law, aimed at preventing their release to the environment.

When printing inks, printing varnishes or printed products are used as intended and properly dried and/or cured, no plastic microparticles are released from the solid film, which is formed during drying of the inks or varnish. The dried/cured layer of ink or varnish does not fall under the microplastics definition, according to the proposed restriction.

There is no transfer of microplastics from the dry ink and varnish films to packaged goods, or any other release into the environment.

Printing inks, printing varnishes (like all industrial mixtures), as well as printed products are not intended to enter wastewater systems. At the end of their life cycle, they have to be recycled or disposed of properly, within the legal framework established in the European Union and/or in the Member States. Proper recycling or disposal processes ensure that there won't be any release of microplastics from printing inks or varnishes into the environment.

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