Additives in plastics and rubber

Background

Plastics is a complex organic material that can consist of a large number of different substances: most often one polymer and various additives. Polymers are the base of plastics and consist of long chains of monomers, as the molecules in the plastic are called. Depending on the polymers and additives used, a plastic can have different properties and functions.

Both polymers and additives in plastic and rubber are covered by Byggvarubedömningen's reporting requirements for chemical content. This applies to additives in plastics and rubber that do not form polymers, i.e. that are not reactively bonded. Any residual monomers do not need to be reported. This means that the supplier needs to have knowledge of the additives included - both concentrations and whether they are covered by our criteria for chemical content. Often the supplier needs to contact their sub-suppliers to find out the exact content of the plastic.

Our Reporting requirements cover more substances than those that have classifications according to the legislation CLP, including Endocrine disrupting and Persistent (PBT/PMT and vPvB/vPvM) substances. The concentration limits for reporting are different depending on whether the product is applied to meet the Recommended or Accepted level.
Unclassified additives need to be reported if they occur in concentrations of ≥2%.
For substances covered by classifications or properties listed in Table 1 of the Reporting requirements, reporting may be required even if the occurrence is below 2%. There may also be additives that occur below the concentration limits of the Reporting requirements in a product.

Examples of additives

- Flame retardant - protects against fire
- Plasticizer - for plastics that need to be soft/flexible, the opposite of soft plastics is stiff plastics
- Filler - to strengthen the material
- Antioxidants - counteract degradation that occurs when the plastic comes into contact with oxygen
- Stabilizers – counteract degradation of the material – heat stabilizers are used in the production of PVC and UV-stabilizers counteract degradation from UV radiation
- Lubricant - to facilitate the fluidity during processing
- Pigments - coloring
- Antistatic agents - reduce the formation of static electricity
- Blowing agent - used in the manufacture of foam plastics, e.g. polyurethane foam, with the function of making the product foam
- Leavening agent - to achieve cell structure, e.g. in foam plastic

Concentrations

Some additives that are often found in higher concentrations in plastics (often >10%) are flame retardants, plasticizers and fillers. Stabilizers, pigments and antioxidants are often found in lower concentrations (often <1%).

More information

The Swedish Chemicals Agency has recently made two reports on substances (in Swedish) in plastics that make recycling difficult, one of which focuses on the construction sector. There is information about various additives and also about which hazardous substances can be found in plastics in different types of construction products. Here are links to these reports:
General Report on Substances in Plastics That Hinder Recycling
PM Focusing on Construction Products

A time-limited exemption (until September 2026) for Reporting requirements for stabilisers in plastics and rubber

What is a stabilizer?

There can be an oxidation in plastic or rubber when sunlight and oxygen are combined. This creates radicals and peroxides that can lead to a deterioration in the function of the plastics. A stabilizer counteracts this oxidation.

Why an exception?

Information has been received from several industries about a great difficulty of finding out which stabilizers are added to plastic, as suppliers often do not manufacture the plastic themselves. The difficulty is because stabilizers are usually trade secrets and because it can be a mixture of several stabilizers that are used. If a supplier does not know which additives that are in the plastic, the product may receive "Avoided due to lack of documentation".

The mission of Byggvarubedömningen is, according to the wishes our members, to assess products on the chemical content in order to be able to compare products and enable traceability. Traceability is important to know which substances are in our buildings before recycling in future renovations and demolitions, but also to be able to trace hazardous substances in the future. We are aware that it can be difficult to find out what additives the plastic contains, but for stabilizers in particular, it seems to be very difficult for many suppliers. The Reporting requirements should be possible and reasonable. Therefore, the Board of Byggvarubedömningen has approved a time-limited two years exemption for the reporting of stabilizers. In the autumn of 2026, this exemption will be evaluated.

What type of stabilizers are used?

Stabilizers used in Europe today mainly contain calcium, calcium-zinc, barium-zinc or magnesium-zinc, these are rarely classified. Stabilisers containing heavy metals such as lead and cadmium, which were previously common, have been phased out in Europe for a number of years now (according to e.g. Espa , which is the trade association for stabilizers in PVC).

All additives except stabilizers continue to be covered by Byggvarubedömningen's accounting requirements.