

EDITORIAL



The present issue of CHIMIA focuses especially on *additives* which are defined e.g. as 'substances added at low concentrations to an organic paint or coating to enhance specific properties... The function of the various additives also may overlap in some cases' [1].

Paints and plastics are part of our daily life. It makes sense, therefore, to select these materials to exemplify the influence of additives on the paint and plastic properties.

Additives are, however, also broadly used e.g. in inks, electronic materials, textiles, lubricants, cosmetics etc. Some of these additional applications are also mentioned in the following articles.

In paints, additives are important in liquid formulations (e.g. rheology improvers, pigment dispersants), after spraying or brushing (e.g. defoamers) and also for the curing process (e.g. driers, catalysts, photoinitiators). The appearance and efficiency (as a decorative and protective film) of a paint is

strongly influenced by silicon additives (smooth and glossy surfaces), by waxes as well as by UV-absorbers and **Hindered Amine Light Stabilizers (HALS)**, which provide an outstanding weatherfastness and a long service life.

The final paper will give you an outstanding insight into the use of various additives in plastics. In the dictionary, paints are defined as 'liquid or powdered solid substances which are applied thinly to objects and which dry by chemical reactions and/or physical changes to form a solid film whose function may be decorative and/or protective' [2]. Paints contain organic solvents and/or water, or are completely solvent-free, depending on the kind of polymers ('binder') used. Paints may also contain inorganic or organic pigments, extender pigments and *additives*, which significantly influence their properties and appearance. Plastics are defined as 'materials based on macromolecular components (derivatives of natural products or purely synthetic compounds). In many cases these materials can be melted or moulded under the influence of heat and/or pressure.' [2]. The properties of plastics are also influenced by additives and therefore have a significant role to play in determining the domain where the plastic can be used.

As soon as you have paints in your hand, independent on whether they are 'cheap' do-it-yourself paints for your fence or 'expensive' paints for your car, you also become involved with additives. This is also valid for all kinds of plastics.

Because of the important role which additives play in various applications, researchers have been trying for decades to develop (and are still trying to develop) new additives as well as to find answers to the question as to how they work.

The present articles describe only a selection of additives and applications because to deal with all possible additives and their influence on material properties in all varieties of applications would be far beyond the scope of this CHIMIA issue.

Enjoy the papers about chemistry which 'we have in our hands every day'.

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- [1] Römpp-Lexikon Lacke und Druckfarben, Georg Thieme Verlag, Stuttgart, New York, **1998**.
[2] Römpp Chemielexikon, vol. 3, Georg Thieme Verlag, Stuttgart, **1992**.

With great pleasure the Editorial Board of CHIMIA warmly thanks the coordinating guest editor Dr. Andreas Valet for his efforts in planning and efficient collation of the present attractive variety of contributions on 'Additives in Plastics and Paints'.