

## **Liquid agents for nail modelling with high methyl methacrylate contents present a health risk**

BfR opinion No. 014/2012, 22 December 2011

Professional nail studios, but also consumers themselves, use products for nail modelling which are based on different systems, namely self-hardening two component systems (powder / liquid systems) and light-curing gel systems. For nail modelling, acrylate monomers such as ethyl methacrylate (EMA) or hydroxyethyl methacrylate (HEMA) are used from which synthetic resins are generated through polymerisation. In rare cases, acrylate monomers may lead to contact dermatitis and skin-, mucosa- and eye irritation. Light-curing systems are characterised by better skin tolerance than powder / liquid systems. A substance recently found in imported two-component systems is methyl methacrylate. Methyl methacrylate is a liquid, colourless monomer which is a basic component of high molecular polymer synthetic resins which are also used as fillings in dentistry and in medicine where applications include, among other things, bone cement in implants. Methyl methacrylate as a monomer is known to have a strong sensitising effect and may cause contact allergies. In addition, the substance may cause inflammation of the paronychia and detachment of the nail with the consequence that nails sometimes do not regrow. After polymerisation, the substance no longer has this effect. However, it can still contain residual amounts of monomers, and these do have adverse health effects. According to analyses conducted by surveillance authorities of the German federal states, some imported two-component powder / liquid systems used for nail modelling contain extremely high amounts of methyl methacrylate. The Federal Office for Risk Assessment (BfR) has assessed such products pertaining to their health effects. It concludes that high concentrations of methyl methacrylate in products used for nail modelling may be harmful to health during their application onto the nail. The BfR advises manufacturers of products for nail modelling, not to use methyl methacrylate in powder / liquid systems. The competent state authorities should take relevant consumer protection measures.

By professional use of nail modelling products which notably avoids skin contact and ensures systematic air exchange indoors, risks can be minimised. However, products with high methyl methacrylate contents should not be used.

The full version of this BfR Opinion is available in German on <http://www.bfr.bund.de/cm/343/fluessige-mittel-zur-nagelmodellage-mit-hohen-methylmethacrylat-gehalten-sind-gesundheitlich-bedenklich.pdf>