

Occupational Health and Safety Bulletin



Use of Methyl Methacrylate-Containing Products for Fingernail Sculpting

On May 22, 2003, Health Canada issued an advisory warning Canadians about cosmetic nail preparations containing methyl methacrylate (MMA). The advisory issued because this chemical can adversely affect the health of persons exposed to it. Section 16 of Canada's *Food and Drug Act* states that no cosmetic may cause injury to the health of the user. As a result, the sale and use of cosmetic nail preparations containing MMA was banned in Canada.

MMA is most commonly found in cosmetic nail preparations used in beauty salons. Nail kits sold at retail outlets may also contain the chemical. Signs that the product may contain MMA include:

- a strong irritating chemical odour that causes dizziness or light-headedness;
- sculpted fingernails that are very hard and difficult to file;
- sculpted fingernails that cannot be removed with solvents designed to remove acrylics, often the manicurist has to grind the MMA nail down to the real nail;
- unlabelled containers; and
- low cost as nail preparations containing MMA are usually one third the price of alternatives.

Health effects of MMA

Adverse health effects from exposure to MMA include irritation of the eyes, nose, throat and respiratory tract. Persons repeatedly exposed to high levels of MMA commonly complain of drowsiness, dizzy spells and trembling of the hands.

MMA can irritate the skin and cause a rash, itching, or small oozing blisters in the area of contact. Repeated contact with MMA can cause allergic skin sensitization. Once a person is sensitized to the chemical, contact with even a small amount can cause dermatitis with symptoms such as skin redness, itching, rash and swelling.

While consumers who use products containing MMA may be at risk of suffering adverse health effects, the risk is much higher for workers who are frequently and normally exposed to the products during work activities. Workers who apply sculpted nails usually work within 30 cm (1 ft) of the client's hand to see the nail properly. At this distance the worker is more likely to inhale MMA vapours or dust while the nails are being shaped.

What if I still have products containing MMA at my workplace?

Because of the ban, products containing MMA may not be used at, or sold in, workplaces in Canada. To determine if a product contains MMA, its material safety data sheet should be checked. Other names used for MMA include:

- MME
- "monocite" methacrylate monomer
- methyl methacrylate monomer
- methyl methacrylate monomer, inhibited
- methyl methacrylate monomer, uninhibited
- methacrylic acid, methyl ester
- 2-methylacrylic acid methyl ester
- methacrylic acid methyl ester
- methyl 2-methyl-2-propenoate
- methyl 2-methyl propenoate
- 2-methyl-2-propenoic acid methyl ester
- 2-(methoxycarbonyl)-1-propene
- methyl alpha-methacrylate
- methylpropylene-2-carboxylate
- 2-(methoxycarbonyl)-1-propene
- acrylic acid, 2-methyl, methyl ester

If the following chemical family names are listed, the product *may or may not* be MMA:

- acrylic monomer
- acrylic ester monomer
- methacrylate monomer
- monofunctional methacrylate
- methacrylic acid ester

However, if a chemical abstracts (CAS) number of 80-62-6 is also present, the chemical is MMA.

Some products contain chemicals with similar sounding names, but these are not included in the ban. This includes substances with the word copoly, copolymer, poly, polymer, dimethacrylate or urethane in the chemical name. The ban on MMA does not apply to denture products.

If nail products containing MMA are found at the workplace, their use must stop and the products must be properly disposed of. For more information, contact Health Canada's Product Safety Office at (780) 495-2626 in the Edmonton area, (403) 292-4677 in the Calgary area, or by e-mail at Edm.Prodsafe@hc-sc.gc.ca.

Substitutes for MMA

Before purchasing a nail preparation product for use at the workplace, the employer should check the supplier's material safety data sheet to ensure the product does not contain MMA. Health Canada still permits the use of ethyl methacrylate (EMA) and other methacrylate polymers in nail preparation products.


Alternatives to MMA include:


- *Light-cured gels* — these products are applied with a small brush and the fingernails are then placed under an ultraviolet light to harden or cure the product. There is no mixing of product ingredients.
- *Wraps* — these include silk, linen and fibreglass. A mesh is applied over the nail or tip and then a resin is brushed over the entire nail. An activator is sometimes used to speed up the setting time of the resin.
- *Natural nail manicures* — no nail building product is applied.


Alternative products also contain chemicals that may also cause health effects. Whatever the product used at the workplace, health hazard information must be available at the worksite. The employer must ensure that procedures are developed for the safe use of the chemicals and workers are trained in the health hazards associated with the chemicals they will be using and how to protect themselves.

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