

Personal Safety

Since metal alkyls can self-ignite, the danger of burns and clothing fire is particularly great. All plant personnel handling metal alkyls must wear protective, fireproof clothing. In addition to providing good protection against fire, the protective clothing must allow sufficient freedom of movement for manual operations, and be light and easy to shed in case of spillage on the clothing.

The following dress codes are recommended when working with fully depressurized systems.

For operations in the plant and pilot plant a protective non-flammable suit manufactured from fire-resistant polyamide fiber such as Nomex[®] has proven to be satisfactory. This protective clothing should be worn by all plant personnel in the area where metal alkyls are handled, even if they are only carrying out routine control and inspection work. A hard helmet, leather gloves, safety goggles and anti-static safety shoes with pierce protection are also recommended. Only garments made of fabric which does not melt in a fire should be worn under the protective clothing.

When transferring metal alkyls from transport containers, or when carrying out repair or maintenance work on equipment, piping and valves, additional protection is necessary. During these tasks a quickly removable protective apron of aluminized Nomex[®] or Kevlar[®] is worn over the Nomex[®] suit. Personnel should also wear a face shield connected to their safety helmets and protective gauntlets as protection against burns (see next page, top picture).

For fighting larger fires, special protective clothing which should be worn with a breathing apparatus, must be readily available. This is a combination of aluminized, fireproof material which can be quickly put on and taken off by means of a single, centrally fitted fastening. This clothing is supplemented by a hood with a heat resistant face shield.

In handling metal alkyls in the research laboratory a combination of an apron and jacket or coat of aluminized polyamide material is recommended. This is particularly important when lesser known or completely new substances are handled in glass apparatus. Special hoods with a transparent shield have proved to be satisfactory as face protection. Resistant leather gloves, sewn with Nomex[®] yarn, should be worn as

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hand protection.

When working with small analytical samples or dilute solutions, the protective clothing can be more comfortable. In these cases an aluminized apron, worn over Nomex[®] laboratory coat, safety goggles and leather gloves give sufficient protection.

Regular instruction in handling metal alkyls is an important factor to assure personal safety.

If, clothing should catch fire through metal alkyls, we recommend water showers for extinguishing.

Areas where metal alkyls are handled must be well ventilated. Breathing apparatus and gas masks with suitable filters should be readily available for protection against fumes which are produced during the decomposition or burning of metal alkyls or their solutions. For smaller incidents gas masks with filters (AP filters for halogen-free metal alkyls, BP filters for those with halogens) are adequate. For larger incidents self-contained breathing apparatus is essential.

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Protective clothing for fullscale industrial plants and pilot plants



Protective clothing for large fires