

MIL-C-81907(AS)  
Amendment-1  
11 January 1974

MILITARY SPECIFICATION

COATING SYSTEM, POLYURETHANE, ALIPHATIC,  
WEATHER RESISTANT: PROCESS FOR APPLICATION OF

This amendment forms a part of Military Specification MIL-C-81907(AS), dated 12 July 1972, and has been approved by the Naval Air Systems Command

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3.2 Line 2, Insert "clear or" after "the"

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3.3 Line 2, Delete "4 volumes" and substitute "1 volume"  
Line 3, Insert ",or clear" before "portion"

3.3.2, 3.3.2.1 and 3.3.2.2, Delete and substitute:

3.3.2 Health Hazards and Precautionary Measures for Application and Handling of Polyurethane Coatings -

3.3.2.1 Health Hazards - Polyurethane paints release unreacted isocyanates during mixing and application. The isocyanates released can produce significant irritation of the skin, eyes, and respiratory tract, even in very small concentrations. They may also induce allergic sensitization of personnel exposed to the vapors and mists produced during spray application. Sensitization is usually characterized by bronchiolar constriction, causing difficulty in breathing, dry cough and shortness of breath. Individual susceptibility appears to be a controlling factor. Once sensitized, many workers cannot tolerate even a minimum subsequent exposure to isocyanates and must thereafter avoid work areas where such exposure could occur. In addition, the solvents employed with polyurethane coatings are moderately toxic and tend to increase the rate of absorption and severity of the physiological effect of the isocyanate component. Safety goggles should be worn when opening shipping cartons and cans. Excessive moisture in Component II cans will produce CO<sub>2</sub> so that the contents will be under pressure. To minimize risk the following actions shall be taken:

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- a. Remove any bulged cans from the cartons with caution.
- b. Discard Component II if can is bulged (do not open) or material is not clear or homogeneous.
- c. Open Component II cautiously with the face away from the lid.
- d. Do not contaminate Components I and II with alcohol or water.
- e. Keep containers closed when not in use.
- f. Wash hands before eating and smoking.
- g. Allow materials to come to room temperature before using.

3.3.2.2 Precautionary Measures - Because of associated health hazards, polyurethane paints shall be limited to authorized applications under the following restrictions:

- a. Production type mixing and spray painting operations employing the standard type spray guns, whether vibrator, air supply or airless types, shall be conducted in specially designed, exhaust-ventilated areas using personal protective equipment and other precautionary measures recommended as a result of an on-site industrial hygiene survey.

- b. Touch-up of small, localized surface areas with polyurethane paint may be performed in any appropriate area (e.g., carrier hangar decks, hangers ashore with doors open), provided:

- (1) The area is well-ventilated.
- (2) Unprotected personnel in adjacent areas are not exposed to the mist, spray or vapor.
- (3) The paint application method is restricted to brush, roller coat or self-pressurized aerosol spray-kit. The volume of paint applied by the spray-kit shall not exceed one (1) quart per 24 hour day per man.
- (4) Personnel engaged in the mixing and application of the paint wear the following personal protective equipment:
  - (a) A well-fitted, double cartridge organic vapor respirator with fresh cartridges inserted daily.
  - (b) Solvent-resistant butyl rubber gauntlet style gloves.
  - (c) Safety goggles.

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Painters should be fully clothed with collars buttoned and sleeves taped at the wrist.

(5) Medical surveillance as described in 3.3.2.2c, below, is maintained over personnel mixing or applying the paint.

c. Persons selected to perform tasks involving the mixing and application of polyurethane paints will receive a medical evaluation prior to assumption of these tasks. Persons found to be medically qualified and assigned to perform these tasks will be re-evaluated at specified intervals. The medical evaluation shall include but not necessarily be limited to the following:

(1) A complete medical history to exclude personnel with any cardiac ailment or respiratory disease e.g., asthma, emphysema or respiratory allergies.

(2) A complete physical examination to be conducted initially and repeated annually.

(3) A complete blood count and chest X-ray (14" x 17") to be obtained initially and repeated semi-annually.

(4) Pulmonary function studies to include a one second forced expiratory volume (FEV-1) shall be conducted initially and repeated semi-annually.

d. Personnel involved in painting operations who display any of the symptoms described in 3.3.2.2c(1) above shall be immediately removed from the job and referred to competent medical authority.

e. All safety precautions listed in 4.4 (Toxicity) below are observed.

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4.3.3 Line 1, Change "3.3.1" to "3.3.2"

Add the following at the end of the paragraph:

f. Mix only that amount which can be used immediately to avoid gelation in the pot.

g. Components are not interchangeable: For example, Component II hardener from one manufacturer may not be used with Component I from a different manufacturer even though both components have the same color number. Likewise, a Component II hardener of one color shall not be used with a different color Component I even though they are from the same manufacturer.

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Table II, Change paragraph heading for 3.3.2 to read: "Health hazards and precautionary measures for application and handling of polyurethane coatings"

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