

Felt Tips

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CONSTRUCTION CHEMICALS - 4

Now for our fourth installment of multisyllabic tongue-twisting chemistry terms used in construction and related industries. This time we concentrate on acrylic and acrylic-based chemicals.

Acrylic Acid:¹

- A. Pronunciation: Uh-KRILL-ick.
- B. Formula: $C_3H_4O_2$ or $H_2C:CHCOOH$
- C. Also called acroleic acid and propenoic acid.
- D. Colorless liquid with an acrid odor.

Acrylic Fiber: Generic name for manufactured fiber in which the fiber-forming substance is any long-chain polymer composed of at least 85 percent (by weight) of acrylonitrile.²

Acrylic Resin:³

- A. Thermoplastic polymers or copolymers made from monomers of acrylic acid, methacrylic acid, esters of these acids, or acrylonitrile.
- B. These monomers are colorless liquids that polymerize readily in the presence of light, heat, or catalysts (like benzoyl peroxide); when shipped, an inhibitor is used to prevent polymerization.
- C. Depending upon the monomer used, acrylic resins vary from hard and brittle solids, to fibrous and elastomeric fibers, to viscous liquids.
- D. Cast sheet and extruded rods are able to transmit light (Lucite™ and Plexiglas™ are examples).
- E. Uses: Bulk-polymerized forms include glazing plastics; solution polymers include liquid coatings; compounded prepolymers are used in spray-applied and baked enamel coatings; aqueous emulsions include adhesives, lamination compounds, fabric coatings, and non-woven fabrics; acrylonitrile-derived acrylics are extruded into synthetic fibers and are used for synthetic elastomers.

Acrylamide:⁴

- F. Pronunciation: ack-RILL-uh-mide
- G. Formula: C_3NH_4O or $CH_2CHCONH_2$.
- H. Colorless and odorless crystals which are toxic by skin absorption.
- I. Uses: Dye-making; cross-linking agent for polymers; soil conditioning agent; flocculents in sewage treatment plants; and used in permanent press fabrics.

Acrylate:⁵

- A. Pronunciation: ack-RILL-ate.
- B. One of several monomers used in manufacturing thermosetting acrylic surface coatings.
- C. Polymer of acrylic acid or its acids, used in surface coatings and emulsion paints.

Acrylene™:⁶

- A. Pronunciation: ack-RILL-een.
- B. A modified acrylic latex useful in exterior paint vehicles.

Acryloid™:⁷

- A. Pronunciation: ACK-rill-oyd
- B. Acrylic polymers available as coating resins, modifiers, and oil additives.
- C. Coating resins:
 - 1. Manufactured from acrylic ester polymers.
 - 2. Available as solvent solutions or solids; water-white and clear transparent.
 - 3. Films range from very hard to very soft.
 - 4. Used for coatings on metals: Heat-resistant and fume-resistant enamels; fluorescent coatings; clear and pigmented coatings.
- D. Modifiers:
 - 1. Powdered form of plastic acrylic polymer.
 - 2. Used in manufacturing and improving the physical properties of rigid and semi-rigid polyvinyl chloride formulations

Acrylon™:⁸

- A. Pronunciation: ACK-rill-ahn or ack-RILL-ahn.
- B. Acrylic rubbers which are outstanding in resistance to oil, grease, ozone, and oxidation.
- C. Uses: Gaskets and rubber parts for contact with oils and diester lubricants.

Acrylonitrile:⁹

- A. Pronunciations: ACK-ruh-low-**NI**-truhll, -trile, -treel; or uh-KRILL-owe-ni-truhll, -trile, -treel.
- B. Formula: C_3NH^3 or $H_2C:CHCN$
- C. Also called propenitrile and vinyl cyanide.
- D. A carcinogen which is toxic by inhalation and skin absorption.
- E. Uses: Manufacturing acrylic and modacrylic fibers and high-strength whiskers; acrylonitrile-butadiene-styrene (used for piping) and acrylonitrile-styrene copolymers; nitrile rubber.
- F. Acrylonitrile-styrene copolymers are used to manufacture plastic soda bottles.

Sources:

Means, Illustrated Construction Dictionary
World Book Dictionary for pronunciations

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Notes:

- 1. Gessner G. Hawley. The Condensed Chemical Dictionary. Van Nostrand Reinhold. 1981, p. 16 to 17.
- 2. Hawley, p. 17.
- 3. Hawley, p. 17.
- 4. Hawley, p. 16.
- 5. Hawley, p. 16.
- 6. Hawley, p. 16.
- 7. Hawley, p. 17.
- 8. Hawley, p. 17.
- 9. Hawley, p. 17.