

A

A. Abbreviation for angstrom (q. v.).

A. Symbol for argon.

"A-1." ⁵⁸ Trade name for thiocarbonyl, (q. v.).

"A-32." ⁵⁸ Trade name for a rubber accelerator, a reaction product of butyraldehyde and butylidene aniline, of complex chemical structure.

Properties: Red-yellow to orange-brown oily liquid, slightly turbid when cold; sp. gr. 0.98; flash point approx. 175°F; moisture, no separation on standing; soluble in benzene, chloroform, acetone, and solvent naphtha.

Containers: 150-, 400-lb steel drums.

Uses: Rubber accelerator; often useful as an activator of thiazole-type accelerators. Excellent for hard rubber.

"A-100." ⁵⁸ Trade name for a reaction product of butyraldehyde, acetaldehyde, and aniline.

Properties: Dark reddish-brown oily liquid; sp. gr. 1.04; flash point approx. 185°F; moisture, no separation on standing; soluble in benzene, chloroform, acetone, and solvent naphtha.

Containers: 150-lb steel drums.

Uses: Accelerator for hard rubber vulcanizates, either natural or synthetic.

AA. Abbreviation for allyl alcohol.

"AA" Oil. ²⁰² Trade-mark for a cold pressed #1 castor oil having light color, high purity and low acidity and meeting U. S. P. and Federal Specification JJJ-C-86 (Grade 1) requirements.

abaca (Manila hemp). The strongest of all vegetable fibers, obtained from the leaves of *Musa textilis*, a tree of the banana family. The fibers are 4-8 ft long, light in weight, soft, lustrous, nearly white in color, and do not swell or stiffen when wet.

Sources: Philippines, Central America, Sumatra.

Grades: Sold in 18 grades based on color and length.

Uses: Heavy cordage and twine, especially for marine use; manila paper; fine tissue paper.

"Abalyn." ²⁶⁶ Trade-mark for a pale liquid

resin, a methyl ester of rosin used as a solvent, penetrant, and plasticizer.

"Abasin." ¹⁶² Trade-mark for acetylcarbonyl (q. v.).

abelmoschus. See ambrette seed.

Abel's reagent. An etching reagent used in the microanalysis of carbon steels. It consists of a 10% solution of chromic acid (CrO_3).

ABH. Abbreviation for alpha-benzene hexachloride.

abies bark. The bark of firs and spruces, used in tanning.

abietates. Salts of abietic acid. Abietic acid is the most abundant acid in the mixture obtained by treating rosin with acetic acid. If the crude acid is employed the metal abietates are identical with resins, although theoretically an abietate is a definite compound derived from abietic acid, $\text{C}_{19}\text{H}_{29}\text{COOH}$.

abietic acid (abietic acid; sylvic acid) $\text{C}_{19}\text{H}_{29}\text{COOH}$. A major active ingredient of rosin, where it occurs with other acids of closely related structure and properties, i. e., the resin acids. The term abietic acid is often applied to these mixtures, separation of which is difficult and not achieved in technical grade material.

Properties: Yellowish resinous powder; m. p. 172-175°C; optical rotation -106°; soluble in alcohol, ether, chloroform, and benzene; insoluble in water.

Derivation: Rosin, colophony, pine resin.

Method of purification: Crystallization.

Grades: Technical.

Containers: Wooden kegs; drums; multi-wall paper sacks.

Uses: Resinates of heavy metals as varnish driers; fermentation (lactic and butyric acid ferments growth promoter, preventive of raw material infection and decomposition); also in manufacture of soaps.

Shipping regulations: None. *

abietic acid, ethyl ester. See ethyl abietate.

abietic acid. See abietic acid.

"Abitol." ²⁶⁶ Trade-mark for a colorless,

tacky, very viscous liquid; mixture of

*See "Transportation of Explosives," page xli.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

tetra-, di-, and dehydroabietyl alcohols made from rosin.

Properties: Viscous, pale, sticky liquid; hydroxyl value, approximately 5 per cent; acid number, about 0.3; color (Lovibond, 50 mm tube) 0.5 amber; sp. gr. (20/20°C) 1.007; refractive index 1.528 (20°C); viscosity (200°C) 30 poises, (270°C) 1.85 poises, (340°C) 0.15 poises. Soluble in and miscible with a wide variety of organic materials.

Uses: Suggested uses are plasticizers, tackifiers, resins, and adhesive modifiers.

A-bomb. See atomic bomb.

"Abopon." ⁷³ Brand name for proprietary product. Sodium boro-phosphate complex. Water-white viscous liquid.

Properties: Sp. gr. (25°C) 1.68; pH (10% solution) 7.7. Soluble in water, diethylene glycol, glycerin; insoluble in ethyl alcohol, methyl alcohol, toluol, mineral spirits, mineral oil, vegetable oil.

Containers: 1-gal can (14 lbs); 5-gal can (70 lbs); 55-gal drum (800 lbs).

Uses: Paper (flameproofing agent, adhesive, sizing, stiffening, glazing, weighting); textiles (scouring); cosmetics (replaces gums in finger-waving solutions); polishes (abrasive and pigment suspensions); paints, lacquers, etc. (sealer for porous surfaces prior to painting); insulation (flameproofing agent for cotton coatings for insulating wire. Poor conductor of heat and electricity and can be used as a binder for other insulated materials). Suggested for water inks, metal cleaning, suspending and binding agent for coloring materials for ceramics and glass enamels.

abortifacient. A medical term applied to drugs or agents that cause abortions.

abradants. See abrasives.

abrasives (abradants). Substances used to wear off or grind objects in order to give them the desired size, shape, or finish. The smoothness of the finish produced by an abrasive depends upon the size or coarseness of the grains. The principal factors in abrasive power, in order of importance, are hardness, brittleness, and refractoriness. The hardness of the abrasive determines what materials can be ground with it since the grains will not cut or scratch anything harder than themselves (see Mohs' scale). Brittleness, with the resulting fracture of the abrasive grains under stress, presents fresh, sharp surfaces, increasing the efficiency of grinding. Refractoriness of the abrasive grain is its resistance to deterioration under the high, local temperatures produced during grinding; it

is often less important than the strength and temperature resistance of the bonding agent used to hold the abrasive grains together. The principal types of bonds are: silicate (waterglass); vitreous or ceramic; shellac; rubber; resinoid (especially alkyd resin); and metallic (made by powder metallurgy). As examples of abrasives, see also, boron carbide, corundum, diamond, and silicon carbide.

abraztol. See calcium beta-naphtholsulfonate.

absinthe. Green liqueur containing oils of wormwood, angelica, anise and marjoram. Toxic. Its manufacture is prohibited by law in the United States.

absinthe oil. See wormwood oil.

absinthin $C_{20}H_{40}O_8$. A glycoside from absinthium.

Properties: Lustrous needles; very bitter taste. M. p. 68°C; slightly soluble in water and petroleum ether; soluble in alcohol, ether, benzene, and chloroform.

Derivation: Extraction from absinthium.

Containers: Glass bottles.

Uses: Medicine; flavoring.

absinthium (wormwood). Leaves and tops of wormwood plant, *Artemisia absinthium*. Also used for the plant itself and for the oil distilled from the leaves and tops.

Occurrence: Europe, northern and western Asia, and Africa; cultivated in United States.

Grades: Technical.

Containers: Bags; boxes.

Uses: Manufacture of absinthin and absinthe; essential oils (raw material); flavor in beverages and condiments; perfumery (aromatic waters and lotions); medicine.

Shipping regulations: None.*

absolute alcohol. Expression for dehydrated ethyl alcohol, at least 99% pure.

absolute temperature. The fundamental temperature scale used in theoretical physics and chemistry, and in certain engineering calculations such as the change in volume of a gas with temperature. Absolute temperatures are expressed either in degrees Kelvin or in degrees Rankine, corresponding respectively to the Centigrade and Fahrenheit scales. Degrees Kelvin are obtained by adding 273 to the Centigrade temperature, while degrees Rankine are obtained by adding 460 to the Fahrenheit temperature. The nearest practical approach to the absolute zero is the melting point of helium which is below -272°C.

absorption. Most commonly means the taking up of a gas or vapor by a liquid (physical or physicochemical absorption), or

*See "Transportation of Explosives," page xlii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

the taking up of energy (heat, light, x-rays) by any material (spectral absorption).

Ammonia is separated from coal gas by passage through water or sulfuric acid solution which take up (absorb, dissolve) the ammonia. As in this example, chemical combination often accompanies absorption, but there are very many instances where the process is entirely physical. The occlusion of hydrogen by certain metals (palladium) is usually termed absorption.

Absorption should be distinguished from adsorption, in that the latter is a surface phenomenon, i. e., the material taken up is distributed over the surface of the adsorbing material. In absorption the material taken up is distributed throughout the body of the absorbent.

Spectral absorption is illustrated when certain wave lengths of sunlight are absorbed by ordinary glass, thereby warming it slightly (the light energy is changed to heat) and depriving the transmitted light of certain wavelengths, particularly those of the ultraviolet spectrum. Transparent liquids are often identified and analyzed by passing a beam of light through them and noting the extent of absorption of original light.

absorption oils (scrubbing oil; wash oil). Generally refer to a moderately high boiling oil distilled from petroleum (i. e., a gas oil) or coal tar, and used for separating desired gases or vapors by dissolving them from some mixture. Thus the vapors of natural gasoline are separated from certain natural gases by passage up a tower through which a stream of an absorption oil is passed; and benzene, toluene, and xylene are recovered from coal gas by a similar procedure.

Abyssinian gold

1. (Talmi gold). Brass having a thin facing of gold applied by rolling; used for costume jewelry.
2. A yellow or gold-colored aluminum bronze containing 5-10% aluminum, the remainder being copper.

Ac. Symbol for actinium.

AC. Abbreviation for allyl chloride.

acacia. See arabic, gum.

acacia bark. Bark of acacia tree, used as an astringent because of its tannin content.

acacia cavenia. See cassie oil.

acacia farnesiana. See cassie oil.

acajou nut. See cashew nut or *semecarpus* nut.

acaricide. A substance, such as TEPP, having the power to kill acarids, i. e. mites and ticks.

acaroid resin. See accroides gum.

accelerator

1. A substance which accelerates the vulcanization of rubber or permits vulcanization at lower temperature, thus reducing time and cost of manufacture and improving the finished products. Accelerators comprise various organic compounds of nitrogen and sulfur, among the most important of which are diphenylguanidine, hexamethylenetetramine, mercaptobenzothiazole, tetramethyl- and tetraethylthiuram disulfides, thiocarbonyl, and zinc dimethyldithiocarbamate. A few inorganic types are still used to a minor extent, e. g., antimony pentasulfide, calcium oxide, magnesium oxide, and zinc oxide.
2. See particle accelerator.

Accelerator "8." ²⁸ Trade-mark for formaldehyde-para-toluidine.

Properties: White powder.

Containers: Drums (100 lbs, net).

Use: To accelerate and improve the vulcanization of natural rubber.

"Accelerator 49." ⁵⁷ A proprietary product.

Di-substituted guanidine half way between diphenylguanidine and di-orthotolylguanidine in accelerating strength. Used as primary accelerators and as activators for other primary accelerators.

Accelerator "89." ²⁸ Trade-mark for 45% water solution of potassium pentamethylenedithiocarbamate.

Properties: Amber liquid.

Containers: Drums (125 lbs, net).

Use: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds.

Accelerator "552." ²⁸ Trade-mark for piperidinium pentamethylenedithiocarbamate. Also called "Pip-Pip."

Properties: Fluffy, cream-colored powder.

Containers: Drums (125 lbs, net).

Uses: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds; as peptizer or plasticizer for neoprene.

Accelerator "808." ²⁸ Trade-mark for butyraldehyde-aniline condensation product.

Properties: Amber liquid.

Containers: Drums (250 lbs, net).

Use: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds.

*See "Transportation of Explosives," page xlii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

- Accelerator "833."** ²⁸ Trade-mark for butyraldehyde-monomethylamine condensation product.
Properties: A translucent, amber liquid.
Containers: Drums (225 lbs, net).
Use: To accelerate and improve the vulcanization of natural and synthetic rubber and latex compounds.
- "Accelerator B."** ⁵⁶ Brand name of a rubber accelerator consisting of 2 parts "Thiurad" and 1 part "Thiotax," the ratio commonly used for butyl rubber stocks.
Containers: 150-lb fiber drums.
- "Accobond" 3900 Cellulosic Film Resin.** ⁵⁷ Trade-mark. Aqueous cationic melamine-formaldehyde resin syrup soluble in all proportions in water.
Use: As an agent for bonding coatings and printings to cellulosic films.
- "Accobrite" Rosin Sizes.** ⁵⁷ Trade-mark for a series of pale or light colored rosin sizes for the paper industry available in dry and liquid forms.
- "Accocel" 741 Dispersant.** ⁵⁷ Trade-mark for a complex sulfonic acid condensate used in controlling pitch troubles in paper making.
- "Acco" Rosin Sizes.** ⁵⁷ Trade-mark for a series of dry and liquid rosin sizes for the paper industry.
- "Accosperse."** ⁵⁷ Trade-mark for a series of aqueous dispersions of chemically manufactured pigments. These dispersions, shipped in polyethylene-lined containers of 30-gal capacity, find use in latex paints and other aqueous systems.
- "Acco" Streptomycin D.** ⁵⁷ A proprietary product, contains not less than 45% active streptomycin as the sulfate salt.
Properties: A light tan powder; soluble in water.
Containers: 12.5-lb can.
Uses: For agricultural usage in the control of plant diseases.
- accroides gum** (black-boy gum; xanthorrhoea resin; acaroid resin; Botany Bay gum).
Properties: Red or yellow gum; soluble in alcohol.
Derivation: A resin obtained from several species of the xanthorrhoea tree (Australia grass tree).
Occurrence: Australia.
Grades: Technical.
Containers: Bags.
Uses: Varnishes; lacquers; rosin substitute; leather (finishing agent); sealing wax compositions; paper (finishing agent); toilet soaps; medicine.
Shipping regulations: None. *
- accuracy.** The extent to which a measured or enumerated value differs from the true value, the true value being assumed or accepted on the basis of independent evidence.
- acecoline.** See acetylcholine chloride.
- acenaphthene** (ethylenenaphthene; naphthyleneethylene; ethylenenaphthalene) $C_{10}H_8(CH_2)_2$.
Properties: White needles; sp. gr. 1.024 (99/4°C); freezing point 91°C; b. p. 277.5°C; index of refraction (100°C) 1.6048. Soluble in hot alcohol; insoluble in water.
Derivation: From coal-tar.
Grades: Technical.
Containers: Wooden barrels or fiber drums.
Uses: Dye intermediates; chemicals; insecticide; fungicide; plastics; horticulture.
Shipping regulations: None. *
- 1,2-acenaphthenedione.** See acenaphthenequinone.
- acenaphthenequinone** (1,2-acenaphthenedione) $C_{10}H_6(CO)_2$.
Properties: Yellow needles, m. p. 261-263°C; insoluble in water; soluble in alcohol.
Derivation: By oxidizing acenaphthene, using glacial acetic acid and sodium or potassium dichromate.
Grades: Technical.
Use: Dye synthesis.
- acerdol.** See calcium permanganate.
- acetal** (diethylacetal; 1,1-diethoxyethane; ethylenediethyl ether; diethylaldehyde) $CH_3CH(OC_2H_5)_2$.
Properties: Colorless, volatile liquid; agreeable odor; nutty after-taste. Stable to alkalis but readily decomposed by dilute acids. Forms a constant boiling mixture with ethyl alcohol. Soluble in alcohol, and ether; sparingly soluble in water.
Constants: Sp. gr. 0.831; b. p. 103-104°C; vapor pressure 20.0 mm. (20°C); flash point (closed cup) 37°F; specific heat 0.520; refractive index 1.38193 (20°C); wt (lbs/gal) 6.89. Typical specifications: Acetal 97% min; boiling range 97-112°C; color water-white; metals none; chlorides, sulfates none; water none; sp. gr. 0.826-0.830 at 20°C; wt/gal 6.89 lbs at 20°C.
Derivation: By the partial oxidation of ethyl alcohol, the acetaldehyde first forming condensing with the alcohol.
Grades: Technical.
Containers: Nonreturnable: 1-gal cans, net wt: 6 lbs; 5-gal cans, net wt: 30 lbs; 55-gal drums, net wt: 365 lbs. Returnable: 5-gal carboys, net wt: 30 lbs; 12-gal carboys, net wt: 75 lbs.
Danger: Extremely flammable.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

Uses: Medicine; solvent; cosmetics; organic synthesis; perfumes.

Shipping regulations: Flammable liquid. Red label.*

acetaldehyde (acetic aldehyde; aldehyde; ethanal; ethyl aldehyde) CH_3CHO .

Properties: Colorless, flammable liquid; pungent, fruity odor. Sp. gr. 0.783 (18/4°C); b. p. 20.2°C; m. p. -123.5°C; vapor pressure 740.0 mm. (20°C); flash point -40°F (open cup); specific heat 0.650; refractive index 1.3316 (20°C); wt 6.50 lbs/gal (20°C); miscible with water, alcohol, ether, benzene, gasoline, solvent naphtha, toluene, xylene, turpentine, and acetone.

Derivation: (a) Oxidation of ethyl alcohol vapor over platinum black or other catalyst; (b) direct oxidation of propane and butane; (c) hydration of acetylene by means of mercuric sulfate or ferric sulfate catalysts, or by high-pressure reaction with an alcohol; (d) by-product in the fermentation production of ethyl alcohol.

Grades: Technical.

Containers: 5-, 10-, 55-, and 110-gal steel drums; 10,000-gal tank cars.

Uses: (in approximate order of volume): Acetic acid; n-butyl alcohol; acetic anhydride (other than that obtained from acetic acid); 2-ethylhexanol; pentaerythritol; 2-methyl-5-ethylpyridine; chloral; phenol and urea condensation products; intermediates for drugs, perfumes, photographic agents.

Danger: Extremely flammable. May form explosive peroxides under air pressure. MCA warning label.

Shipping regulations: Flammable liquid. Red label.*

acetaldehyde ammonia. See aldehyde ammonia.

acetaldehyde cyanohydrin. See lactonitrile.

acetaldol. See aldol.

acetamide (acetic acid amine, ethanamide) CH_3CONH_2 .

Properties: Colorless deliquescent crystals. Mousy odor. Soluble in water and alcohol; slightly soluble in ether.

Constants: Sp. gr. 1.159; m. p. 82°C; b. p. 223°C; refractive index 1.4274 (78.3°C).

Typical specifications (technical grade): Acetamide 99% min; free acid, acetic 0.3% max; chlorides none; sulfates none; color grayish; odor slight, mousy; m. p. 77-79°C.

Typical specifications (C. P. odorless grade): Acetamide 99.5-99.9%; free acid, acetic trace; chlorides none; sulfates none; color white; odor none; m. p. 79-81°C; nonvolatile 0.04% max.

Derivation: By the interaction of ethyl acetate and ammonium hydroxide.

Method of purification: Crystallization.

Grades: Technical; C. P. odorless.

Containers: Nonreturnable; 5-, 25-, 50-, 100-lb fiber cartons; 200-lb fiber containers. All net weight.

Uses: Organic synthesis (reactant, solvent, peroxide stabilizer); general solvent; lacquers; explosives; soldering flux; hygroscopic agent; wetting agent; penetrating agent.

Shipping regulations: None.*

acetamido-. Prefix for $\text{CH}_3\text{CONH-}$. Also called acetamino- or acetylamino-.

5-acetamido-8-amino-2-naphthalenesulfonic acid $\text{C}_{10}\text{H}_7(\text{SO}_3\text{H})(\text{NH}_2)(\text{CH}_3\text{CONH})$.

Properties: Reddish-brown paste containing approximately 40% solids.

Grade: Technical.

Use: Intermediate.

para-acetamidobenzenesulfonyl chloride.

See acetylaminobenzenesulfonyl chloride.

para-acetamidobenzoic acid. See para-acetylaminobenzoic acid.

3-acetamido-4-hydroxybenzenesulfonic acid. See acetylaminohydroxyphenylsulfonic acid.

8-acetamido-2-naphthalenesulfonic acid magnesium salt $[\text{C}_{10}\text{H}_6(\text{CH}_3\text{CONH})(\text{SO}_3)]_2\text{Mg}$.

Properties: Brownish-gray paste containing approximately 80% solids.

Grade: Technical.

Use: Intermediate.

para-acetamidophenol. See para-acetylaminophenol.

2-acetamidothiophene $\text{C}_4\text{H}_4\text{ONS}$.

Properties: Fine tan crystals; practically odorless; stable; m. p. 158-160°C.

Use: Synthesis of aminothiophene derivatives.

3-acetamido-2,4,6-triiodobenzoic acid. See acetrizoic acid.

"Acetamine." ²⁸ Trade-mark for a group of azo dyes and developers made for application to acetate yarn, and especially suited to the coloration of nylon, "Orlon" acrylic fiber and "Dacron" polyester fiber.

acetamino-. See acetamido-.

para-acetaminophenetol. See acetophenetidin.

para-acetaminophenylallyl ether (allyl para-acetylaminophenolate; allyl para-acetaminophenolate; allyl para-acetaminophenolate) $\text{C}_6\text{H}_4(\text{NHCOCH}_3)(\text{C}_3\text{H}_5\text{O})$.

Properties: Scales or plates; m. p. 94°C; soluble in alcohol; less so in water.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

acetanilide (N-phenylacetamide; antifebrin)
 $C_6H_5NH(COCH_3)$.

Properties: White, shining crystalline scales or white, crystalline powder, odorless; stable in air; slightly burning taste; sp. gr. 1.2105; m.p. 114-116°C; b.p. 305°C; soluble in hot water, alcohol, ether, chloroform, acetone, and glycerol.

Typical specifications: Melting range 112-114°C, ash 0.05% max; completely soluble in 95% ethyl alcohol.

Derivation: By the acetylation of aniline with glacial acetic acid.

Method of purification: Crystallization.

Grades: Technical; N. F. X.

Containers: 1-lb cartons; 5-, 25-, 50-lb boxes; 100-lb kegs; 150-, 200-lb barrels; bottles; fiber drums; multiwall paper sacks.

Use: Medicine; rubber accelerator; preservative for hydrogen peroxide; stabilizer for cellulose ester "dopes" and lacquers; manufacture of intermediates (para-nitroaniline, para-nitroacetanilide, para-phenylenediamine); synthetic camphor; drug; pharmaceutical chemicals; dyestuffs; precursor in penicillin manufacture.

Shipping regulations: None.*

acetanilidide. See methacetin.

acetanisole. See para-methoxyacetophenone.

acetarsonic acid. See acetylaminohydroxyphenylarsonic acid.

acetate

1. A compound derived from acetic acid, CH_3COOH , by replacing the acid hydrogen by a metal or a radical, so that the resulting compound contains the acetate radical or group (CH_3COO-). See ethyl acetate, copper acetate, etc.

2. Official name (ruling by Federal Trade Commission in 1951) for fiber formerly called "acetate rayon" or "acetate silk." The term "rayon" may not now be used for this type fiber, which is made by the acetate process (q. v.). Acetate ordinarily consists of partially hydrolyzed cellulose acetate but a fully acetylated cellulose fiber ("Arnel") is also made.

acetate C-8. See n-octyl acetate.

acetate C-9. See nonyl acetate.

acetate C-10. See decyl acetate.

acetate C-11. See undecylenyl acetate.

acetate C-12. See dodecyl acetate.

acetate dyes. These are for the most part insoluble azo or anthraquinone dyes that have been highly dispersed to make them capable of penetrating and dyeing acetate

fibers. A second class is insoluble amino azo dyes that are made water soluble by treatment with formaldehyde and bisulfite. After absorption by the fiber the resulting sulfonic acids hydrolyze and regenerate the insoluble dyes.

acetate film. A durable, highly transparent film with nondeforming characteristics, produced from cellulose acetate resin. It is grease-, oil-, dust-, and air-proof and hygienic.

Available forms: Rolls and cut-to-size sheets.

Uses: Principally for laminations; foliation; document preservation; pressure sensitive tape; magnetic sound recording tape; window cartons and envelopes; packaging of items, such as textiles, paper specialties, tomatoes, avocados, mushrooms and for bottle overwraps.

acetate green. A chrome-green pigment with yellowish blue tone in which the yellow is made from lead acetate.

acetate of lime. Commercial term for calcium acetate and sometimes applied particularly to the calcium acetate made from pyroligneous acid and milk of lime. There are a brown and gray acetate of lime. For further data see calcium acetate.

acetate process. A process for making cellulose acetate resin or fiber by treating cellulose (wood pulp or cotton linters) with acetic acid, acetic anhydride, and sulfuric acid as catalyst. The cellulose is fully acetylated (three acetate groups per glucose unit) and at the same time the sulfuric acid causes appreciable degradation of the cellulose polymer so that the product contains only 200-300 glucose units per polymer chain. At this point in the process the cellulose acetate ordinarily is partially hydrolyzed by the addition of water until an average of 2-2.5 acetate groups per glucose unit remain. This product is thermoplastic and soluble in acetone. Fibers are produced by forcing an acetone solution through orifices of the spinneret into a stream of warm air, which evaporates the solvent. Fibers are also produced in a similar manner from cellulose triacetate, which is insoluble in acetone but soluble in methylene chloride. See "Arnel."

acethydrazidepyridinium chloride. See Girard's "P" reagent.

acetic acid (ethanoic acid, vinegar acid, methanecarboxylic acid) CH_3COOH . Glacial acetic acid is the term for the pure compound, in distinction to the frequently encountered water solutions

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

known as acetic acid. Vinegar is a dilute acetic acid.

Properties: Clear, colorless, acid liquid; very pungent odor. M.p. 16.6°C; b.p. 118.2°C; sp. gr. 1.051 (20/20°C); wt/gal (20°C) 8.64 lbs; viscosity (20°C) 1.22 cps; flash point (open cup) 110°F. Miscible with water, alcohol, glycerin, and ether; insoluble in carbon disulfide.

Derivation: (1) By oxidation of acetaldehyde with air at 60-80°C in the presence of manganous acetate or cobalt acetate; (2) by bacterial oxidation of dilute ethyl alcohol; (3) recovery from pyroligneous acid by solvent extraction with ether or ethyl acetate (Coahran process), by absorption (Suida process), or by azeotropic distillation (Othmer process); (4) by catalytic combination of methanol and carbon monoxide at 700 atmospheres and 350°C.

Grades: U. S. P. XV (glacial and dilute); C. P.; technical (80; 99.5%); commercial (6, 28, 30, 36, 56, 60, 70, 80, and 99.5%).

Containers: 5-lb bottles; 6-, 13-gal carboys; 8.5-, 13-, 55-, 100-gal barrels and drums; tankcars.

Uses: Manufacture of acetic anhydride and acetate esters; very widely used as an acid, solvent, and reagent in the production of rubber, plastics, acetate fibers, pharmaceuticals, dyes, insecticides, photographic chemicals, etc.

Caution: Causes severe burns. MCA warning label.

acetic acid amine. See acetamide.

acetic acid, glacial. See acetic acid.

acetic aldehyde. See acetaldehyde.

acetic anhydride (acetyl oxide, acetic oxide) $(CH_3CO)_2O$.

Properties: Colorless, very mobile, strongly refractive liquid; very strong acetic odor; sp. gr. 1.0830 (20/20°C); b.p. 139.9°C; f.p. -73.1°C; flash point 150°F; wt/gal (20°C) 9.01 lbs. Miscible with alcohol, ether, and acetic acid; soluble in cold water; decomposes in hot water to form acetic acid.

Typical specifications: Sp. gr. 1.080-1.085 (20/20°C); color not darker than .00001 N iodine solution; purity not less than 96.0%; chlorides none; sulfates none; phosphates none; nitrates none; heavy metals none; paraffin none; $KMnO_4$ test 2 cc. shall not reduce more than 0.1 cc of 0.1 N $KMnO_4$; sulfur compounds not more than .009%; average weight 9.01 lbs/gal (20°C).

Derivation: (1) By oxidation of acetaldehyde with air in the presence of manganous acetate or cobalt acetate; (2) by reaction of acetylene and glacial acetic

acid in the presence of mercuric sulfate to form ethylidene diacetate, which is subsequently decomposed by distillation over sodium pyrophosphate or zinc chloride, forming acetic anhydride and acetaldehyde; (3) from ketene and glacial acetic acid; (4) from sodium acetate, sulfur dichloride, and chlorine.

Grades: C. P., technical (75, 85, 90-95%).
Containers: Various bottles; 5-gal carboys; 55-gal aluminum drums; tankcars.

Uses: Mainly for cellulose acetate fibers and plastics; dehydrating and acetylating agent in production of pharmaceuticals, dyes, perfumes, explosives, etc.

Caution: Causes burns. Do not breathe vapor. MCA warning label.

acetic ester. See ethyl acetate.

acetic ether. See ethyl acetate.

acetic oxide. See acetic anhydride.

acetyl (monacetyl; glyceryl monoacetate)

$C_2H_5O_2C_3H_5(OH)_2$. Acetyl may also refer to glyceryl di- or triacetate, also known as diacetyl and triacetyl (q. v.).

Properties: Colorless, thick liquid, hygroscopic; sp. gr. 1.206 (20/4°C); b.p. 158°C (165 mm); 130°C (3 mm); soluble in water, alcohol; slightly soluble in ether; insoluble in benzene.

Derivation: By heating glycerol and strong acetic acid, distilling off the weak acetic acid formed and again heating with strong acetic acid and distilling.

Method of purification: Rectification.

Impurities: Uncombined acetic acid.

Grades: Technical.

Containers: 500-gm bottles; 1-, 10-, 50-lb tins; 500-lb drums.

Uses: Gelatinizing smokeless powders; preparing noncongealing dynamites; production of dinitroacetyl glycerin; tanning; solvent for basic dyes, indulin dyes, Perkin's violet dye.

Shipping regulations: None.*

acetoacetanilide (acetyl acetanilide)

$CH_3COCH_2CONHC_6H_5$.

Properties: White, crystalline solid.

Resembles ethyl acetoacetate in chemical reactivity. Slightly soluble in water, soluble in dilute sodium hydroxide, alcohol, ether, acids, chloroform, and hot benzene.

Constants: M.p. 85°C.

Typical specifications: M.p. 83.0-85.0°C; iron none; aniline none; solubility, 2 g soluble in 100 cc of 0.5% NaOH; color above solution not darker than 0.00003 N iodine; appearance white, flaky solid; purity not less than 97.0% by the CO_2 evolution method; density 25 lbs/cu ft.

Derivation: By reacting ethyl acetoacetate with aniline, eliminating ethyl alcohol. Acetoacetanilide may also be prepared

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

from aniline and diketene.

Grades: Technical.

Containers: Fiber drums. Net content: 3, 15, 125 lbs. Paper-lined wooden barrels, net weight 175 lbs.

Uses: Organic synthesis; dyestuffs (intermediate in the manufacture of the dry colors generally referred to as Hansa and benzidine yellows).

Fire hazard: None.

Shipping regulations: None. *

acetoacet-ortho-anisidide

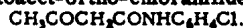


Properties: White crystalline powder; m. p. 86.6°C; sp. gr. 1.1320 (86.6/20°C); flash point (open cup) 325°F.

Containers: 1-gal cans; 5-, 55-gal drums.

Uses: Intermediate for azo pigments.

acetoacet-ortho-chloranilide



Properties: White crystalline powder; m. p. 107°C; b. p. decomposes; sp. gr. 1.1920 (107/20°C); flash point (open cup) 350°F.

Containers: 1-gal cans; 5-, 55-gal drums.

Use: Intermediate for azo pigments.

acetoacet-para-chloranilide

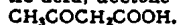


Properties: White crystalline powder; m. p. 133°C; b. p. decomposes; flash point (open cup) 320°F. Very slightly soluble in water.

Containers: 200-lb drums.

Use: Intermediate for azo pigments.

acetoacetic acid (acetyl acetic acid; diacetic acid; acetone carboxylic acid)



Properties: Colorless oily liquid; soluble in water, alcohol, and ether; decomposes below 100°C into acetone and carbon dioxide.

Uses: Organic syntheses.

acetoacetic ester. See ethyl acetoacetate.

acetoacet-para-phenetidine



Properties: Crystalline powder; m. p.

108.5°C; b. p. decomposes; sp. gr.

1.0378 (108.5/20°C); flash point (open cup) 325°F.

Containers: 1-gal cans; 5-, 55-gal drums.

Use: Intermediate for azo pigments.

acetoacet-ortho-toluidide



Properties: Fine, white granular powder; m. p. 106°C; slightly soluble in water.

Grades: Technical.

Containers: Paper-lined wooden barrels.

Net weight 250 lbs.

Uses: Intermediate in the manufacture of Hansa and benzidine yellows.

Fire hazard: None.

Shipping regulations: None. *

acetoacet-meta-xylylidide



Properties: White to light yellow crystalline solid; m. p. 89-90°C; sp. gr. (20°C) 1.238; solubility in water (25°C) 0.5%.

Use: Organic synthesis.

acetoaminosalol. See salophen.

para-acetoanisol. See para-methoxyacetophenone.

acetobromal. See diethylbromoacetamide.

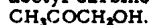
aceto-caustin. See trichloroacetic acid.

acetocinnamone. See benzylidene acetone.

acetoglycerides. Term commonly used to refer to acetylated monoglycerides although commercial acetoglycerides will contain di- and tri- glycerides. See acetostearin.

acetoin. See acetyl methylcarbinol.

acetol (acetonyl alcohol; hydroxyacetone; acetyl carbinol; pyruvic alcohol).



Properties: Colorless liquid; sp. gr.

1.0824 at 20/20°C; b. p. 146°C; m. p.

-17°C. Soluble in water, alcohol, and ether.

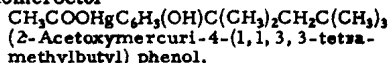
Derivation: (a) By action of potassium acetate or potassium formate on a solution of bromo- or chloroacetone in dry methanol; (b) by bacterial fermentation of propylene glycol.

Grades: Technical.

Use: Solvent for nitrocellulose.

acetoluidide. See acetyl ortho-, or para-toluidine.

acetomercoctol



Properties: White solid; m. p. 155-157°C; freely soluble in alcohol; soluble in ether or chloroform; sparingly soluble in benzene; practically insoluble in water.

Use: Medicine.

acetone (dimethylketone; ketopropane; pyroacetic ether; 2-propanone) CH_3COCH_3 .

Properties: Colorless liquid; characteristic odor; flammable. M. p. -94.3°C; b. p. 56.1°C; refractive index (20°C) 1.3591; sp. gr. (15°C) 0.7972; wt/gal (15°C) 6.64 lbs; flash point (open cup) 15°F. Miscible with water, alcohol, ether, chloroform, and most oils.

Derivation: (a) Oxidation of isopropyl alcohol; (b) fermentation of carbohydrates by bacterial organism; (c) oxidation of cumene; (d) oxidation of natural gas.

Method of purification: Rectification.

Grades: Technical; reagent, N. F. X.

Containers: 1-gal cans; 1-, 5-, 30-,

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

54-gal drums; 350-lb barrels; 8000-gal tank cars.

Uses (in approximate order of volume): Synthesis of acetic anhydride; derivatives such as diacetone alcohol, mesityl oxide, etc.; solvent for cellulose acetate; solvent in paints, lacquers, and adhesives; absorbent for acetylene; general solvent uses.

Fire hazard: Dangerous, extremely flammable, use with adequate ventilation. MCA warning label.

Shipping regulation: Flammable liquid. Red label. *

acetone-bromoform. See tribromo-tert-butyl alcohol.

acetone carboxylic acid. See acetoacetic acid.

acetone, chlorinated. See chloroacetone.

acetone chloroform. See chlorobutanol.

acetone cyanohydrin (alpha-hydroxyisobutyronitrile; 2-methyl-lactonitrile) $(\text{CH}_3)_2\text{COHCN}$.

Properties: Colorless liquid; b.p. 82°C (23 mm); m.p. -20°C; density 0.932 (19°C); refractive index n_D 20/D 1.3996; flash point 165°F; soluble in water, alcohol, and ether. Distillation not recommended because of decomposition to hydrocyanic acid and acetone. Insoluble in petroleum ether.

Derivation: By condensing acetone with hydrocyanic acid.

Grades: Technical (97-98% pure).

Containers: 6-gal carboys; 380-lb drums.

Uses: Insecticide; intermediate for organic synthesis, especially methyl methacrylate.

Shipping regulations: Poison, class B. Poison label.

acetonedicarboxylic acid. See beta-ketoglutaric acid.

acetone oxime. See acetoxime.

acetone sodium bisulfite. See sodium acetone bisulfite.

acetonitrile. See methyl cyanide.

acetonyl acetone (1,2-diacetylene; hexanedione-2,5; 2,5-diketohexane) $\text{CH}_3\text{COCH}_2\text{CH}_2\text{COCH}_3$.

Properties: Colorless liquid. Soluble in water.

Constants: Sp. gr. 0.9734 (20/20°C); b.p. (760 mm) 192.2°C; vapor pressure 0.43 mm at 20°C; freezing point -5.4°C; flash point 185°F; wt 8.1 lbs/gal (20°C); xylene nitrocellulose dilution ratio 1.8.

Typical specifications: Sp. gr. 0.971-0.976 at 20/20°C; boiling range 185-195°C (760 mm); acidity not more than 0.02% (as acetic).

Derivation: By-product in the production of acetaldehyde from acetylene.

Grades: Technical.

Containers: 1-gal can; 5-gal (tin-lined) drum; 55-gal drum. Net content: 8, 40, 430 lbs.

Caution: Volatile solvent, avoid prolonged breathing of vapor, use with adequate ventilation.

Uses: Solvent for cellulose acetate; roll-coating inks; tanning agent; lacquers; stains.

acetonyl alcohol. See acetol.

3-(alpha-acetonylbenzyl)-4-hydroxycoumarin. See warfarin.

acetophenetidin (para-acetylphenetidin; para-acetaminophenol; phenacetin; para-ethoxyacetanilide) $\text{CH}_3\text{CONHC}_6\text{H}_4\text{OC}_2\text{H}_5$.

Properties: White crystals or powder; odorless and stable in air. Soluble in alcohol, chloroform and ether; slightly soluble in water; has slightly bitter taste.

Constants: M.p. 135°C.

Derivation: By the interaction of para-phenetidin and glacial acetic acid, or of ethyl bromide and para-acetaminophenol.

Method of purification: Crystallization.

Grades: Technical; U.S.P. XV.

Containers: 1-lb cartons; 5-, 25-, 50-lb boxes; 100-lb kegs; 150-barrels; 1000-lb barrels.

Uses: Medicine.

Shipping regulations: None. *

acetophenone (phenyl methyl ketone; hyponone; acetyl benzene) $\text{C}_6\text{H}_5\text{COCH}_3$.

Properties: Colorless liquid with sweet, pungent odor and taste. B.p. 201.7°C; f.p. 19.7°C; sp. gr. (20/20°C) 1.030; wt/gal (20°C) 8.75 lbs; refractive index (20°C) 1.5363; flash point (Cleveland open cup) 180°F. Slightly soluble in water; soluble in organic solvents.

Derivation: (a) Friedel-Crafts process with benzene and acetic anhydride or acetyl chloride; (b) by-product from the oxidation of cumene to produce acetone and phenol; (c) oxidation of ethyl benzene.

Method of purification: Distillation and crystallization.

Grades: Technical.

Containers: Glass bottles; 1-gal cans; 5-, 55-gal drums.

Uses: Perfumery; tear gas, by chlorination; solvent; intermediate for pharmaceuticals, resins, etc.

Shipping regulations: None. *

acetopropionic acid. See levulinic acid.

acetopyrine. See antipyrine acetylsalicylate.

acetostearin

$\text{CH}_2(\text{CH}_2)_{14}\text{COOCH}_2\text{CHOHCH}_2\text{OOCCH}_3$.

Acetylated glyceryl monostearate. It is

*See "Transportation of Explosives," page xlii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

a solid with the peculiar combination of flexibility and nongreasiness. Derived from glyceryl monostearate or mixed glycerides by acetylation with acetic anhydride. Suggested uses are as a superior protective coating for food and as a plasticizer.

acetotoluidide. See acetyl-ortho- or -para-toluidine.

acetoxime (acetone oxime; 2-propanone oxime) $(CH_3)_2CNOH$.

Properties: Colorless crystals or liquid. Both basic and acidic in properties. Chloral-like odor. Fairly readily hydrolyzed by dilute acids. Soluble in alcohols, ethers, and water.

Constants: Sp. gr. 0.97 (20/20°C); b. p. 136.3°C; m. p. 61°C.

Grades: Technical.

Uses: Organic synthesis (intermediate); solvent for cellulose ethers; primer for Diesel fuels.

acetozone. See acetylbenzoyl peroxide.

acetrizic acid (3-acetamido-2,4,6-triiodobenzoic acid) $CH_3CONHC_6H_2I_3COOH$.

Properties: White, odorless powder. Soluble in alcohol and in solutions of alkali hydroxides; slightly soluble in ether; very slightly soluble in chloroform; practically insoluble in benzene. M. p. (dec) 278-283°C.

Grade: U. S. P. XV.

Use: Medicine.

acetyl acetanilide. See acetoacetanilide.

acetyl acetic acid. See acetoacetic acid.

acetylacetone $CH_3COCH_2OCCH_3$ (diacetyl-methane; pentanedione-2,4).

Properties: Very mobile, colorless liquid. Unpleasant odor. When cooled, solidifies to lustrous, pearly spangles. The liquid is affected by light. It turns a brownish color and there is formation of resinous products. B. p. 140.5°C (760 mm); sp. gr. (20/20°C) 0.9753; wt 8.1 lbs/gal, coefficient of expansion 0.00105 (20°C); vapor pressure 7.0 mm (20°C); freezing point -23.5°C; viscosity 0.0058 poise (20°C). Soluble in water (acidified by hydrochloric acid); fairly soluble in plain water; soluble in alcohol, chloroform, ether, benzene, acetone, and glacial acetic.

Derivation: By condensing ethyl acetate with acetone.

Grades: Technical.

Containers: Tin-lined or stainless 5-gal cans or 55-gal steel drums.

Uses: Solvent for cellulose acetate; intermediate.

acetylamin-. See acetamido-.

para-acetylaminobenzaldehyde thiosemicarbazone. See thiosemicarbazone.

para-acetylaminobenzene sulfonyl chloride (para-acetamido-benzenesulfonyl chloride; N-acetylsulfanilyl chloride) $(CH_3CONH)C_6H_4(SO_2Cl)$.

Properties: Light tan to brownish powder or fine crystals. M. p. 149°C; soluble in benzene, chloroform, and ether.

Containers: 150-lb steel drums.

Use: As an intermediate in the manufacture of sulfa drugs.

ortho-acetylaminobenzoic acid. See acetyl-anthranilic acid.

para-acetylaminobenzoic acid (para-acetamidobenzoic acid) $CH_3CONHC_6H_4COOH$.

Properties: Needle-like crystals. Soluble in alcohol; slightly soluble in water.

Constants: M. p. 256.5°C (dec).

Derivation: Oxidation of acetyl-para-toluidine by potassium permanganate.

Grades: Technical.

Use: Chemical (intermediate).

acetylaminohydroxyphenylarsonic acid (acetarsonic; 3-acetamido-4-hydroxybenzenearsonic acid) $HOCH_2CONHC_6H_3AsO(OH)_2$.

Properties: White to slightly yellow powder containing 27% arsenic; odorless; slight acid taste; soluble in alkali and alkali carbonate solutions; slightly soluble in water and alcohol.

Grades: N. F. X.

Use: Medicine.

Shipping regulations. None.*

l-acetyl-amino-8-naphthol-3,6-disulfonic acid (acetyl H-acid) $CH_3CONHC_{10}H_6OH(SO_3H)_2$.

Properties: Slightly soluble in water.

Derivation: Acetylation of H acid.

Grades: Technical.

Uses: Dyestuffs (reds).

para-acetylaminophenol (para-acetamidophenol; para-hydroxy acetanilide) $C_6H_4OHNHOCCH_3$.

Properties: Crystals; sp. gr. 1.293 (21/4°C); m. p. 168°C; slightly soluble in water and ether; soluble in alcohol.

Derivation: Interaction of para-aminophenol and an aqueous solution of acetic anhydride.

Uses: Chemical (intermediate in making pharmaceuticals, stabilizer for hydrogen peroxide); medicine.

acetyl-para-aminophenyl salicylate. See salophen.

acetyl-para-aminosalol. See salophen.

para-acetylanisole. See para-methoxyacetophenone.

acetylanthranilic acid (ortho-acetylaminobenzoic acid) $C_6H_4CH_3CONHCOOH$.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

Properties: Needles, plates, rhombic crystals (crystallized in glacial acetic acid); m.p. 185°C; slightly soluble in water; soluble in hot alcohol, ether and benzene.

Derivation: By oxidation of ortho-acetyl-toluidine with potassium permanganate in the presence of magnesium sulfate or potassium chloride.

Grades: Technical.

Uses: Chemical (organic synthesis, anthranilic acid).

acetylation. Introduction of an acetyl radical (CH_3CO^-) into the molecule of an organic compound having OH or NH_2 groups. The usual reagents for this purpose are acetic anhydride or acetyl chloride. Thus ordinary ethyl alcohol $\text{C}_2\text{H}_5\text{OH}$ may be converted to $\text{C}_2\text{H}_5\text{OCOCH}_3$ (ethyl acetate). Cellulose is similarly converted to cellulose acetate by treatment with a mixture containing acetic anhydride. Acetylation is commonly used to determine the number of hydroxyl groups in fats and oils (See acetyl value).

acetylatoxyl. See arsenacetin.

acetyl benzene. See acetophenone.

acetylbenzoyl peroxide (acetozone; benzozone; $\text{C}_6\text{H}_5\text{CO} \cdot \text{O}_2 \cdot \text{CH}_3\text{CO}$).

Properties: White crystals; decomposed by water, alkaloids, organic matter and some organic solvents; decomposes slowly and evaporates when gently heated, and instantaneously (possibly explosively) if quickly heated, ground or compressed. The commercial product is mixed with a neutral drying powder and contains 50% acetylbenzoyl peroxide; m.p. 36.6°C; b.p. 130°C (19 mm); moderately soluble in ether, chloroform, carbon tetrachloride and water; slightly soluble in mineral oils and alcohol.

Uses: Medicine (active germicide); disinfectant.

Shipping regulations: In solution, oxidizing material. Yellow label. Solid, not accepted. *

acetyl bromide CH_3COBr .

Properties: Colorless, fuming liquid; turns yellow in air; reacts violently with water or alcohol; fumes irritate the eyes; soluble in ether, chloroform and benzene.

Constants: B.p. 81°C; m.p. -96°C; sp. gr. 1.663 (16/4°C).

Derivation: By the interaction of acetic acid and phosphorus pentabromide.

Grades: Technical.

Containers: Metal bottles; iron drums.

Uses: Organic synthesis; manufacture of dyes.

Shipping regulations: Corrosive liquid. White label. *

N-acetyl-N-bromodiethylacetyl urea. See acetylcarbromal.

acetyl carbinol. See acetol.

acetylcarbromal (N-acetyl-N-bromodiethylacetylurea) $\text{C}_6\text{H}_{13}\text{BrN}_2\text{O}_3$.

Properties: Crystals, slightly bitter taste; m.p. 109°C. Slightly soluble in water; freely soluble in alcohol, and ethyl acetate.

Use: Medicine.

acetyl chloride CH_3COCl .

Properties: Colorless, flammable, highly refractive, fuming liquid; strong odor; irritating to eyes; sp. gr. 1.1051; m.p. -112°C; b.p. 51-52°C; soluble in ether, acetone, acetic acid; violent reaction with water and alcohol.

Derivation: By mixing glacial acetic acid and phosphorus trichloride in the cold and heating a short time to drive off hydrochloric acid. The acetylchloride is then distilled.

Containers: Iron drums; 110-lb carboys. Protect from moisture.

Uses: Organic preparations (acetylating agent); dyestuffs; pharmaceuticals.

Danger: Flammable, causes severe burns. MCA warning label.

Shipping regulations: Corrosive liquid. White label. *

acetylcholine (acetyl ethanol-trimethylammonium hydroxide)

$\text{CH}_3\text{COOCH}_2\text{CH}_2\text{N}(\text{CH}_3)_3\text{OH}$. A derivative of choline believed to be important in the mechanism of nerve action. The enzyme choline esterase hydrolyzes acetylcholine into comparatively inactive choline and acetic acid and is necessary in the body to prevent acetylcholine poisoning. See nerve gases.

Properties: White, crystalline powder; hygroscopic; soluble in water.

Use: Medicine.

acetylcholine bromide (pragmoline)

$(\text{CH}_3)_3\text{NBr}(\text{CH}_2)_2\text{OCOCH}_3$.

Properties: Colorless, hygroscopic crystals; m.p. 143°C; very soluble in water; soluble in alcohol; decomposes in hot water; insoluble in ether.

Derivation: Reaction of choline bromide and acetic anhydride.

Use: Medicine.

acetylcholine chloride (acecoline)

$(\text{CH}_3)_3\text{NCl}(\text{CH}_2)_2\text{OCOCH}_3$.

Properties: Colorless hygroscopic crystals; m.p. 149-152°C; odorless; very soluble in water and alcohol; decomposed by hot water or alkalis; insoluble in ether.

Derivation: From reaction of choline chloride and acetic anhydride.

Use: Medicine.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

"Acetylcresol." ²⁶⁴ Trade-mark for meta-cresyl acetate.

Properties: Colorless liquid of slight, but agreeable odor; b.p. 210-212°C (volatile with steam); insoluble in water at 25°C; miscible with organic solvents, fats and oil.

Uses: External and dental antiseptic; vapor-phase fungistat of enclosed electrical and optical equipment.

acetylene (ethine; ethyne) C_2H_2 .

Properties: Colorless gas; ethereal odor; highly flammable; explosive when compressed or mixed with air in certain proportions; toxic when inhaled; forms explosive compounds with copper and silver; sp. gr. 0.91 (air = 1); m.p. -81.8°C (890 mm); b.p. -84°C (760 mm); soluble in alcohol, acetone, and water.

Derivation: (a) By the action of water on calcium carbide; (b) cracking of petroleum hydrocarbons by the Sachse process, or the Wulff process (q.v.).

Grades: Technical, containing 98% acetylene and not more than 0.05% by volume of phosphine or hydrogen sulfide.

Containers: Steel cylinders. Much acetylene is also delivered by pipe line.

Uses (in approximate order of volume):

Welding and cutting of metals; vinyl and vinylidene chlorides; acrylonitrile; general illuminating purposes; per- and trichloroethylene; chlorinated rubber industry; acetic acid, acetaldehyde and acetate monomers; vinylacetylene for neoprene; miscellaneous chemicals, including those of the Reppe process (q.v.).

Danger: Flammable gas.

Shipping regulations: Flammable compressed gas. Red label. *

acetylene black. The carbon black resulting from incomplete combustion or thermal decomposition of acetylene gas.

Properties: High liquid adsorption, retention of high bulk volume, purity and electrical conductivity. Has property of instilling this conductivity into plastics, rubbers, and other materials.

Uses: Manufacture of dry cell batteries and conductive rubber and plastics; component of explosives; as a filler in natural rubber and in thermal and sound insulation, as a gloss suppressor in the paint industry, as a carburizing agent in hardening of steel and as a pigment in special printing inks.

acetylene dichloride. See sym-dichloroethylene.

acetylene hydrocarbons. Unsaturated hydrocarbons of the homologous series having the empirical formula C_nH_{2n-2} and a structural formula containing a triple bond.

acetylene tetrabromide (Muthmann's liquid; sym-tetrabromoethane) $CHBr_2 \cdot CHBr_2$.

Properties: Yellowish liquid. Soluble in alcohol and ether; insoluble in water. Constants: Sp. gr. 2.98 to 3.00; b.p. 239-242°C (760 mm) with decomposition; 151°C (54 mm); m.p. 0.1°C; refractive index 1.638.

Derivation: By the interaction of acetylene and bromine, and subsequent distillation. Method of purification: Rectification.

Grades: Technical.

Containers: 1- and 5-lb bottles; 10-lb metal cans; 55-gal steel drums.

Uses: Separating minerals by specific gravity; solvent for fats, oils, and waxes; fluid in liquid gauges.

Shipping regulations: None. *

acetylene tetrachloride (sym-tetrachloroethane) $CHCl_2 \cdot CHCl_2$.

Properties: Heavy, colorless, mobile, nonflammable, corrosive, toxic liquid. Chloroform-like odor, but more toxic than the latter. Soluble in alcohol and ether; insoluble in water.

Constants: Sp. gr. 1.593 at 25/25°C; b.p. 146.5°C; freezing point -43°C; weight 13.25 lbs/gal (25°C); refractive index 1.4918 (25°C); flash point none; fire point none; heat of vaporization 55.1 cal/gm (b.p.); specific heat 0.27 cal/gm/°C; specific resistivity 4.2×10^7 ohms/cm; viscosity 1.59 centipoises at 25°C.

Typical specifications: Colorless.

Derivation: By the interaction of acetylene and chlorine, and subsequent distillation. Method of purification: Rectification.

Grades: Technical.

Containers: 55-gal. drums.

Uses: Solvent; cleansing and degreasing metals; paint removers, varnishes, lacquers, photographic film; resins and waxes; extraction of oils and fats; ethyl alcohol denaturant; organic synthesis; insecticides; as a weed killer.

Caution: Vapor extremely hazardous, do not breathe vapor or get on skin or clothing. MCA warning label.

Shipping regulations: None. *

acetylenogen. See calcium carbide.

N-acetyl ethanolamine (hydroxyethyl acetamide) $CH_3CONHC_2H_4OH$.

Properties: Brown viscous liquid, soluble in alcohol, ether, and water; sp. gr. 1.122 (20/20°C); boiling range 150-152°C (5 mm), decomposes (10 mm); lbs/gal 9.34 (20°C); refractive index n_D 1.4730; flash point (open cup) 350°F; f.p. 15.8°C.

Grades: Technical (75% solution in water).

Uses: Plasticizer for polyvinyl alcohol and for cellulosic and proteinoid substances; humectant for paper products, glues, cork and inks; high-boiling solvent used

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

in compounding fountain-pen inks.

acetyl ethanol trimethylammonium hydroxide.
See acetyl choline.

acetyl eugenol. See eugenol acetate.

acetylformic acid. See pyruvic acid.

acetyl H-acid. See 1-acetyl amino-8-naphthol-3, 6-disulfonic acid.

acetyl iodide CH_3COI .

Properties: Colorless, transparent, fuming liquid, turning brown on exposure to air or moisture; soluble in ether and benzene; decomposed by water and alcohol.

Constants: Sp. gr. 1.98; b.p. 105-108°C.

Derivation: By the interaction of acetic acid, iodine, and phosphorus.

Method of purification: Distillation.

Grades: Technical.

Containers: Glass bottles.

Uses: Organic synthesis.

Shipping regulations: Corrosive liquid.

White label.*

acetylisoegenol (isoeugenol acetate)

$\text{C}_6\text{H}_5(\text{CHCHCH}_3)(\text{OCH}_3)(\text{OCOCH}_3)$.

Properties: White crystals; spicy clove-like odor; congealing point 77.0°; soluble 1 part in 27 parts of 95% alcohol.

Method of purification: Crystallization.

Grades: Technical.

Containers: Tin cans.

Uses: Perfumery, particularly for carnation-type odors.

Shipping regulations: None.*

acetyl ketene. See diketene.

acetylmethylcarbinol (acetoin: 3-hydroxy-2-butanone; dimethylketol) $\text{CH}_3\text{COCOCH}_2\text{CH}_3$.

Properties: Slightly yellow liquid or crystalline solid (dimer); oxidizes gradually to diacetyl on exposure to air; sp. gr. 1.016; b.p. 140-148°C; m.p. 15°C; soluble in alcohol; miscible with water in all proportions; slightly soluble in ether.

Derivation: Reduction of diacetyl.

Grades: Technical.

Containers: 10-, 100-gm, 1-, 5-lb glass bottles.

Uses: Aroma carrier; preparation of flavors and essences.

Shipping regulations: None.*

acetyl-beta-methylcholine chloride. See methacholine chloride.

acetyl-1, 4-naphthylenediamine-6- and 7-sulfonic acids $\text{C}_{10}\text{H}_7\text{NH}_2\text{NHCH}_3\text{COSO}_3\text{H}$.

Properties: Needle-like crystals; sparingly soluble in water.

Derivation: Acetylation of 1-naphthylamine-6- and 7-sulfonic acids followed by (a) nitration in the presence of conc sulfuric acid, and (b) reduction.

Grades: Technical.

Uses: Organic synthesis; dyestuffs.

acetyl oxide. See acetic anhydride.

acetyl peroxide (diacetyl peroxide)

$(\text{CH}_3\text{CO})_2\text{O}_2$.

Properties: Colorless crystals; m.p. 30°C; explodes on heating; slightly soluble in cold water; soluble in alcohol and ether. Marketed as a 25% solution in dimethyl phthalate; flash point (open cup) 113°F; f. p. (approx.) -8°C; sp. gr. (20°C) 1.18.

Containers: 65-lb carboys.

Shipping regulations: Solution: Oxidizing material. Yellow label. Solid: Not accepted.

acetylphenetidin. See acetophenetidin.

acetyl phenol. See phenyl acetate.

N-acetyl-para-phenylenediamine. See para-aminoacetanilide.

acetylphenylhydrazine (hydracetin; pyrodon)

$\text{C}_6\text{H}_5(\text{NH})_2\text{C}_2\text{H}_5\text{O}$.

Properties: Colorless, inodorous crystals; m.p. 128°C; soluble in alcohol; moderately soluble in water and ether.

Derivation: Replacement of hydrogen in hydrazine by phenyl and acetyl radicals.

Containers: Fiber drums; steel drums;

multiwall paper sacks.

Uses: In medicine; organic synthesis; stabilizer (transformer oils, vegetable oils, coal-carbonization spirits, lubricating oils, petroleum oils, shale oils).

Shipping regulations: None.*

N¹-acetyl- N⁴-phthalylsulfanilamide. See phthalylsulfacetamide.

acetyl propionyl (2, 3-pentanedione; methyl ethyl glyoxal; methyl ethyl diketone)

$\text{CH}_3\text{COCOCH}_2\text{CH}_3$.

Properties: Yellow liquid; m.p. -52°C; b.p. 106-110°C; sp. gr. (15/4°C) 0.955-0.959; partly soluble in water.

Use: Flavors of butterscotch and chocolate type.

acetyl resorcinol. See resorcinol acetate.

acetylsalicylic acid (aspirin) $\text{C}_9\text{H}_8\text{O}_4$ $\text{C}_6\text{H}_4\text{CO}_2\text{H}$.

Properties: White crystals or white, crystalline powder. Odorless or has faint odor. Stable in dry air; slowly hydrolyzes in moist air to salicylic and acetic acids. Slightly soluble in water; soluble in alcohol, chloroform, and ether; less soluble in absolute ether. Dissolves with decomposition in solutions of alkali hydroxides and carbonates. M.p. 132-136°C.

Derivation: Action of acetic anhydride on salicylic acid.

Method of purification: Crystallization.

Impurities: Salicylic acid.

Grades: Technical; U. S. P. XV.

Containers: 25-lb boxes; 25-, 100-, 250-lb drums.

Use: Medicine.

Shipping regulations: None.*

*See "Transportation of Explosives," page xlii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

acetyl salol. See phenylacetylsalicylate.

N-acetylsulfanilamide. See sulfacetamide.

N-acetylsulfanilamide sodium. See sulfacetamide sodium.

N-acetylsulfanil chloride. See para-acetylamino benzenesulfonyl chloride.

acetylsulfisoxazole



Properties: White to slightly off-white, crystalline solid with slight characteristic odor; m. p. 192-195°C. Practically insoluble in water; slightly soluble in alcohol, chloroform, and ether.

Use: Medicine.

acetyltannic acid (tannyl acetate; diacetyltannin) $\text{C}_{14}\text{H}_{20}\text{O}_9(\text{COCH}_3)_2$

Properties: Yellowish-white or grayish-white powder, darkening on exposure to light; soluble in ethyl acetate, aqueous solution of sodium borate or sodium phosphate; slightly soluble in water and alcohol.

Derivation: Heating tannin with acetic anhydride in presence of glacial acetic acid.

Use: Medicine.

Shipping regulations: None.*

acetyltannin. See acetyltannic acid.

acetyl-ortho-toluidine (ortho-acetoluidide)



Properties: Colorless crystals; m. p. 110°C; b. p. 296°C; sp. gr. 1.168 (15°C); soluble in alcohol, ether, benzene, chloroform, glacial acetic acid; slightly soluble in cold water; insoluble in hot water.

Derivation: By boiling glacial acetic acid with ortho-toluidine and distilling the product.

Grades: Technical.

Use: Organic synthesis.

acetyl-para-toluidine (para-acetoluidide)



Properties: Colorless needles; m. p. 153°C; b. p. 307°C; density 1.212 (15/4°C); slightly soluble in water; soluble in alcohol, ether, ethyl acetate, glacial acetic acid.

Method of purification: Not purified.

Grades: Technical.

Containers: Wooden barrels or fiber drums.

Uses: Dyes.

Shipping regulations: None.*

acetyl tributyl citrate



Properties: Colorless, odorless liquid. Distillation range (1 mm) 172-174°C; pour point -75°F; sp. gr. (25°C) 1.046; wt/gal (25°C) 8.74 lbs; refractive index (25°C) 1.4408; viscosity (25°C) 42.7 cps. Insoluble in water.

Derivation: Esterification and acetylation

of citric acid.

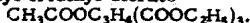
Grades: Technical.

Containers: Metal drums; cans.

Uses: Plasticizer for vinyl resins.

Shipping regulations: None.*

acetyl triethyl citrate



Properties: Colorless, odorless liquid.

Distillation range (1 mm) 131-132°C;

pour point -45°F; sp. gr. (25°C) 1.135;

wt/gal (25°C) 9.47 lbs; refractive index

(25°C) 1.4386; viscosity (25°C) 53.7 cps

Slightly soluble in water.

Derivation: Esterification and acetylation of citric acid.

Grades: Technical.

Containers: Metal drums; cans.

Uses: Plasticizer.

Shipping regulations: None.*

acetyl tri-2-ethylhexylcitrate $\text{C}_{32}\text{H}_{58}\text{O}_8$

Properties: Liquid; b. p. 225°C (1 mm); insoluble in water.

Grades: Technical.

Use: Low-volatility plasticizer for the vinyls.

acetyl value. The number of milligrams of KOH required for neutralization of acetic acid obtained by the saponification of one gram of acetylated fat or oil sample. Acetylation is carried out by boiling the sample with an equal amount of acetic anhydride, washing and drying. Saponification values on the acetylated and on untreated fat are determined. From the results the acetyl value is calculated. It is a measure of the number of free hydroxyl groups in the fat or oil.

achillea (milfoil; yarrow). The flowering tops of the perennial herb, *Achillea millefolium*.

Occurrence: Europe, America.

Chief constituents: Volatile oil; tannin; achillein.

Use: Medicine.

"Achromycin." ⁵⁷ Trade-mark for tetracycline, $\text{C}_{22}\text{H}_{24}\text{N}_2\text{O}_8$.

Properties: Golden yellow crystalline material; m. p. 170-175°C (dec.); hydrochloride formed by adding concentrated hydrochloric acid to solution of the free base. Trihydrate is soluble in water at 26.5°C to extent of 0.36 mg/ml. Tetracycline forms salts with bases and acids. Hydrochloride m. p. 224°C; solubility in water, 132 mg/ml at 26.5°C; soluble in ethylene glycol monomethyl ether and methanol; pH (1% aqueous solution) 2.5. Tetracycline is very stable in solution at pH 7.0.

Use: Highly active antibiotic, having broad spectrum very similar to "Aureomycin".

acicular. Needle-shaped; used in describing crystals or the particles in powders.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

acid. Any compound of hydrogen and one or more other elements that dissociates or breaks down to produce hydrogen ions when dissolved in water (or certain other solvents). The resulting solutions are sour in taste, and will cause litmus solution to become red and other indicators to undergo a characteristic color change. The solution will also neutralize hydroxides or bases. All these properties are very much in evidence with water solutions of strong or active acids, but weak acids show the properties to a lesser or even negligible extent, there being all gradations of acidity. See pH.

1, 2, 4 acid. See 1-amino-2-naphthol-4-sulfonic acid.

acid amide. See amide.

acid ammonium tartrate. See ammonium bitartrate.

acid ammonium valerate. See ammonium isovalerate.

acid anhydride. An oxide of a nonmetallic element or an organic radical which is capable of forming an acid when united with water, or which can be formed by the abstraction of water from the acid molecule, or which can unite with basic oxides to form salts.

acid calcium phosphate. See calcium phosphate, monobasic.

acid dyes. These are usually azo, triaryl-methane or anthraquinone dyes with acid substituents such as nitro-, carboxyl, or sulfonic acid. They are most frequently applied in acid solution to wool and silk, and no doubt combine with the basic groups of the proteins of those animal fibers. Orange II (C.I. 151), black 10 B (C.I. 246), and acid alizarine blue B (C.I. 1054) are examples.

acid ethylsulfate. See ethylsulfuric acid.

acid glaucine blue. See peacock blue.

acidic oxides. The oxides of nonmetals, e. g. SO_2 , CO_2 , P_2O_5 , SO_3 , which form acids when combined with water. See also acid anhydrides.

acidimetry. The determination of the concentration of acid solutions or of the quantity of acid in a sample or mixture. This is usually done by titration with a solution of base of known strength (standard solution) and an indicator is used to establish the end point. See also pH.

acid lining. Silica brick lining used in Bessemer or open hearth furnaces.

acid liquor, sulfite. See sulfite acid liquor.

acid magnesium citrate. See magnesium citrate, dibasic.

acid magnesium phosphate. See magnesium phosphate, monobasic.

acid methyl sulfate. See methylsulfuric acid.

acid of sugar. Oxalic acid (q. v.).

acidogen nitrate. See urea nitrate.

"Acidolene." ²⁴⁴ Trade-mark for a series of sulfonated oils made from neatsfoot, sperm, cod, fish and coconut oil.

Containers: Non-returnable steel drums averaging 400-425 lbs net.

Uses: Primarily used by the leather industry and referred to as fatliquors. Also used wherever an oil emulsifiable in water is needed for plasticizing or softening.

acid open hearth slag. See slag.

acid phosphatase. An enzyme found in blood serum which catalyzes the liberation of inorganic phosphate from phosphate esters. Optimum pH 5; is less active than alkaline phosphatase.

Uses: Biochemical research.

acid phosphate. An acid salt of phosphoric acid such as NaH_2PO_4 , CaHPO_4 , etc. Also used to refer specifically to calcium phosphate monobasic, $\text{Ca}(\text{H}_2\text{PO}_4)_2$, or superphosphate of lime.

acid potassium oxalate. See potassium binoxalate.

acid potassium sulfate. See potassium bisulfate.

acids. See under specific title, e. g., sulfuric acid, not acid, sulfuric.

acid value. The number of milligrams of potassium hydroxide neutralized by the free acids present in one gram of oil. The determination is done by titrating the sample in hot 95% ethyl alcohol and using phenolphthalein as an indicator.

"Acintene." ²³² Trade-mark for a group of pinene, terpene, and turpentine products. "Acintene" A: alpha-Pinene. Close boiling solvent.

"Acintene" B: beta-Pinene. Used for terpene resins, synthetic pine oil.

"Acintene" C: Crude sulfate turpentine.

"Acintene" N: Liquid terpene polymer.

Used as a vehicle constituent for printing inks; as a plasticizer for resins and rubber; caulking compounds; mastic tile adhesives.

"Acintene" L: Turpentine still residue. For use in printing inks and resins; as a rubber softener; as a replacement for pine tar.

"Acintene" P: Solvent grade refined sulfate turpentine. Used in the manufacture of shoe polishes, wax preparations, cleaning compounds, and as thinner for paints and varnishes.

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

"Acintene" Z: High boiling cut of sulfate turpentine. Used as a solvent for oils, waxes, and resins; as an extender for pine oil.

"Acintol." ²⁵² Trade-mark for a series of tall oils and tall oil derivatives.

"Acintol" C: Crude tall oil, a mixture of rosin and fatty acids containing a small amount of unsaponifiable matter.

"Acintol" FA-1 and FA-2 Fractionated Tall Oils: High quality, low cost fatty acids for the surface coating, soap, and chemical processing industries.

"Acintol" D Distilled Tall Oil: Fractionated tall oil characterized by light color, uniform composition, high acid and saponification numbers, and high linoleic acid content.

"Acintol" R Tall Oil Rosin: A rosin suitable for many applications where wood and gum rosins have been used.

"Acintol" P Tall Oil Pitch: Light-colored semisolid product of uniform composition.

acmite. See pyroxenes.

acoline. See di-para-anisyl-para-phenetylguanidine hydrochloride.

"Aconew Extra." ⁷⁹ Trade name for a refined tall oil product. Fatty acid composition: Linoleic 45%; linolenic, none; oleic 54%; saturated 1%.

Properties: Acid value 194; saponification value 196; iodine value 130; rosin acids 1%; fatty acids 98%; unsaponifiables 1%; ash, trace; moisture, none; refractive index (n₂₀/D) 1.4694; color 3-4; cloud point 10°C; fatty acid solidification 7°C; viscosity (SSU 100°F) 110 sec; viscosity (Gardner-Holdt 25°C) A-2; flash point (open cup) 370°C; fire point (open cup) 419°C; sp. gr. (25/25°C) 0.898; wt/gal (25°C) 7.468 lb.

Containers: 55-gal drums; tank cars.

Uses: Paint and varnish; inks; soaps; disinfectants; textile oils; core oils.

See also "Aconon" and "Acosix".

aconite (monkshood; wolfsbane; friar's cowl).

Derivation: Dried tuberous root or leaves of the perennial herbaceous plant *Aconitum napellus*. Poisonous!

Occurrence: Mountainous regions of

Europe, Asia and North America.

Grades: Technical; N. F. X.

Containers: Burlap bags and boxes.

Uses: Medicine.

Shipping regulations: None. *

aconitic acid (propene-1, 2, 3 tricarboxylic acid) CH3COOHCCOOHCH2COOH.

Properties: White to yellowish crystalline solid; m. p. (about) 195°C with decomposition; soluble in water and alcohol.

Derivation: (a) By dehydration of citric

acid with sulfuric acid; (b) extraction from sugar cane bagasse, *Aconitum napellus* and other natural sources.

Uses: Preparation of plasticizers and wetting agents; antioxidant; organic syntheses.

aconitine C34H49NO11.

Properties: White crystalline alkaloid; feeble bitter taste; intensely poisonous! Soluble in alcohol, ether, benzene, and chloroform; very slightly soluble in water.

Constants: M. p. 204°C; specific rotation, in chloroform, +17.3°.

Derivation: By extraction and crystallization from the root of *Aconitum napellus*. Containers: 1/8-, 1/4-, 1-oz vials, 5-, 10- and 15-grain vials.

Uses: Similar to aconite, in form of the base or as the hydrobromide, hydrochloride, nitrate.

Shipping regulation: None. *

Salts obtained by interaction of the acid and alkaloid:

Hydrobromide C34H49NO11.HBr.2 1/2 H2O. M. p. (dec.) 180°C; specific rotation -30.5°.

Hydrochloride C34H49NO11.HCl.3 1/2 H2O. M. p. (dec.) 171°C; specific rotation -31.3°.

Nitrate C34H49NO11.HNO3. M. p. (dec.) about 200°C; specific rotation (2% aqueous solution) -35°.

aconitine hydrobromide. See aconitine.

aconitine hydrochloride. See aconitine.

aconitine nitrate. See aconitine.

"Aconon." ⁷⁹ Trade name for refined tall oil.

Fatty acid composition: Linoleic 51%; linolenic, none; oleic 46%; saturated 3%.

Properties: Acid value 191; saponification value 197; iodine value 150; rosin acids 25%; fatty acids 73%; unsaponifiables 2%;

ash, trace; moisture, none; refractive index (n₂₀/D) 1.4857; color 5-6; cloud point 3°C; fatty acid solidification -1°C;

viscosity (SSU 100°F) 265 sec; viscosity (Gardner-Holdt 25°C) B-C; flash point (open cup) 367°F; fire point (open cup)

428°F; sp. gr. (25/25°C) 0.936; wt/gal (25°C) 7.784 lb.

Containers: 55-gal drums; tank cars.

Uses: Paint and varnish; inks; soaps; disinfectants; textile oils; core oils.

See also "Aconew Extra" and "Acosix".

acopyrin. See antipyrine acetylsalicylate.

acorn sugar. See quercitol.

"Acosix." ⁷⁹ Trade name for refined tall oil. Fatty acid composition: Linoleic 51%; linolenic, none; oleic 46%; saturated 3%.

Properties: Acid value 191; saponification

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.

value 197; iodine value 150; rosin acids 29%; fatty acids 69%; unsaponifiables 2%; ash, trace; moisture, none; refractive index (n_D 20) 1.4879; color 5-6; cloud point 3.5°C; fatty acid solidification -1°C; viscosity (SSU 100°F) 270 sec; viscosity (Gardner-Holdt 25°C) C-D; flash point (open cup) 365°F; fire point (open cup) 429°F; sp. gr. (25/25°C) 0.942; wt/gal (25°C) 7.833 lb.

Containers: 55-gal drums; tank cars.

Uses: Paint and varnish; inks; soaps; disinfectants; textile oils; core oils.

See also "Aconew Extra" and "Aconon."

"A-C" Polyethylenes. ¹³² Trade-mark for a line of low molecular weight polyethylenes.

Properties: Translucent white; tasteless; non-toxic; excellent electrical properties; abrasion resistant; resistant to water and most chemicals; sp. gr. 0.92. Slightly soluble in turpentine, petroleum naphtha, xylene, and toluene, at room temperature; at 180°F soluble in xylene, toluene, trichloroethylene, turpentine and mineral oils; insoluble in water; at 225°F miscible in all proportions with the solvents boiling above this temperature.

Grades:

No. 6: Average molecular weight, 2000; m. p. 97-102°C; hardness, 0.3-0.5; viscosity at 140°C, 185 secs (Furol).

No. 7: Average molecular weight, 2000; m. p. 102-106°C; hardness, 0.2-0.3; viscosity at 140°C, 250 secs (Furol).

No. 615: Average molecular weight, 5000; m. p. 102-104°C; hardness, 0.3-0.4; viscosity at 140°C, 4000 cps.

No. 617: Average molecular weight, 1500; m. p. 88-90°C; hardness, 2.0-2.5; viscosity at 140°C, 69 secs (Furol).

No. 629: Color (NPA) <1; m. p. 208-212°F.

Uses: In coating paper and containers; in polishes; candles; electrical insulations; and (Grade No. 617) as mold release agent and in investment wax application.

acraldehyde. See acrolein.

"Acrawax." ⁷³ Brand name for proprietary product. Modified fatty acid ester.

Properties: Hard, light-brown, synthetic wax. Good luster. Soluble (hot) in ethyl alcohol, toluol, butyl acetate and turpentine. Partly soluble in mineral oil and mineral spirits. Insoluble in water. Blends with carnauba wax, rosin, shellac, stearic acid, estergum, etc.

Constants: Sp. gr. (24°C) 1.04; m. p. 95-97°C; flash point 230°C (open cup).

Containers: 1-gal. can (8 lbs); 5-gal can (40 lbs); 55-gal drum (400 lbs).

Uses: For the manufacture of polishes, dental waxes, record waxes, wax coatings, etc.

"Acrawax" B. ⁷³ Brand name for a proprietary product. Claimed to be a modified fatty acid ester.

Properties: A hard, brown wax of good luster. Soluble (hot) in mineral spirits, alcohol, toluol, butyl acetate, mineral oil. Insoluble in water. This product differs from "Acrawax" in that it is compatible with paraffin wax and forms gels with mineral spirits and kerosene.

Constants: Sp. gr. 0.955 (25°C); flash point 235°C (open cup); m. p. 81° to 84°C.

Containers: 1-gal, 5-gal cans; 55-gal drums. Net weight: 8, 50, 400 lbs.

Uses: Flattening agent for paints, enamels and varnishes.

"Acrawax" C. ⁷³ Brand name for proprietary product.

Properties: Hard, brown synthetic wax, having a good luster. Soluble (hot) in toluol, mineral spirits, mineral oil, vegetable oil and turpentine. Insoluble in water and isopropanol. Blends with paraffin wax, carnauba wax, candelilla, rosin. This product is of interest where a high-melting wax which is not brittle is desired.

Constants: M. p. 140-142°C; flash point 283°C (open cup); sp. gr. 0.975 (25°C).

Containers: 1-gal can (8 lbs); 5-gal can (40 lbs); 55-gal drum (400 lbs).

Uses: In the manufacture of polishes, electrical insulation, waterproofing, record waxes, dental waxes and special wax combinations. Because of its high flash point, "Acrawax" C can be used for many purposes where ordinary waxes are unsuitable due to fire hazards.

acridine C₁₃H₉N.

Properties: Small colorless needles. When the dust or vapor is inhaled it causes violent sneezing; solutions of acridine and salts irritate the skin. Soluble in alcohol, ether or carbon disulfide; sparingly soluble in hot water.

Constants: Sublimes at 100°C; m. p. 111°C; b. p. above 360°C.

Derivation: (a) By extraction with dilute sulfuric acid from anthracene and adding potassium dichromate. The acridine chromate precipitated is recrystallized, treated with ammonia and recrystallized, (b) It has been obtained synthetically by a number of processes.

Uses: Manufacture of dyes; derivatives, especially acriflavine, proflavine; analytical reagent.

Shipping regulations: None. *

acriflavine (neutral acriflavine; euflavine; tryptaflavine neutral; 3,6-diamino-10-methylacridinium chloride)

C₁₄H₁₄N₂Cl.

Properties: Brownish or orange, odorless,

*See "Transportation of Explosives," page xiii.

Reference numbers refer to name of manufacturer. See "List of Manufacturers," page v.