



UCC

UNION CARBIDE AND
CARBON CORPORATION

SYNTHETIC ORGANIC

Chemical Products

*Synthetic Chemistry Serves
All Industry*

Adhesive	Packaging
Automotive	Paper
Aviation	Petroleum
Composition Cork	Pharmaceutical
Cosmetic	Phonograph Record
Dental Supply	Photographic
"Dry Ice"	Radio Condenser
Dyestuff	Refrigerator
Explosive	Rubber
Fruit Ripening	Safety Glass
Fumigation	Shoe
Hydraulic Brake	Soap
Lacquer	Steel
Leather	Textile
	Tobacco

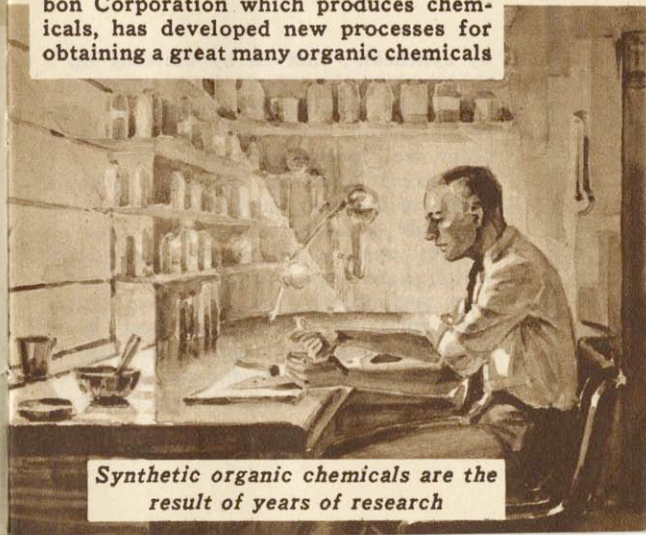
The illustrations in this booklet show a few of the many applications for synthetic organic chemicals.

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SYNTHETIC ORGANIC CHEMICAL PRODUCTS

Organic chemistry is that branch of chemistry which treats in general of the compounds usually produced in living organisms such as plants or animals. It is, therefore, the chemistry of compounds of hydrogen and carbon, or hydrocarbons, and the numerous substances derived from them.

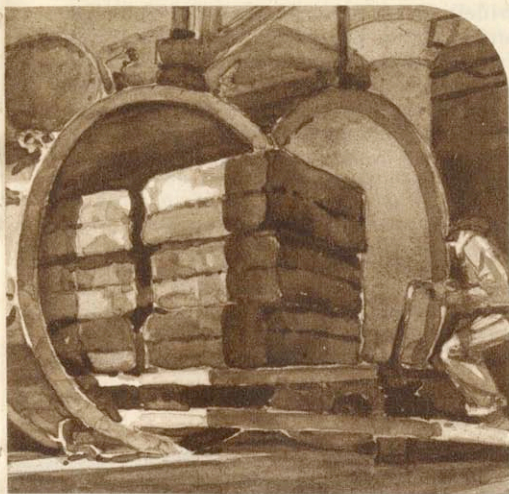
Carbide and Carbon Chemicals Corporation, the unit of Union Carbide and Carbon Corporation which produces chemicals, has developed new processes for obtaining a great many organic chemicals



*Synthetic organic chemicals are the
result of years of research*



Tobacco, grain and foodstuffs are fumigated with Carboxide



by synthesis; that is, by building up a chemical product from its elements instead of reaching that result through fermentation, destructive distillation or older, well-known methods.

A great American synthetic organic chemical industry has grown up, making available to industry and the home an infinite variety of chemical products which were formerly expensive laboratory curiosities. From the great chemical works at South Charleston, West Virginia, come tank car quantities of products which affect the daily lives of all of us. These chemicals, the result of

years of research and development work, are finding new applications every day. This booklet will tell you how some of them are used.

The Magic Gas

Ethylene has often been termed the "magic gas." Ethylene destroys the green pigment in mature but unripe fruits and vegetables, permitting the natural color, on which it has no effect, to appear. This gas also increases the sugar content and often makes the artificially ripened product more palatable than the one that is allowed to ripen naturally. Ethylene is

widely used to accelerate the coloring and ripening processes of mature citrus fruits, tomatoes, bananas, melons, and for the blanching of celery, endive and other vegetables. The use of ethylene not only shortens the time of ripening but lowers the acidity of early apples, plums, pineapples and other fruits.

Fumigants

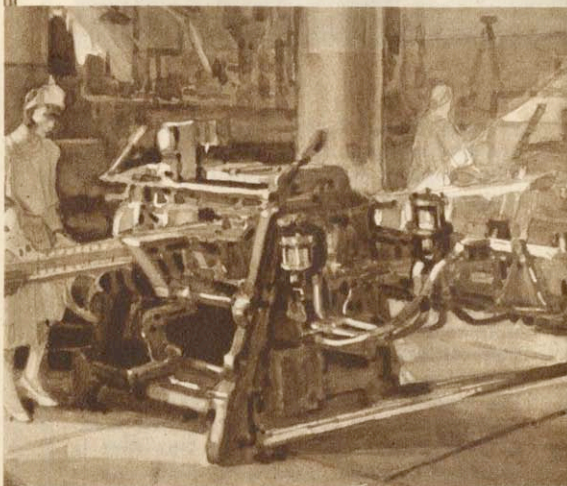
Carboxide is the trade mark for a mixture of one part ethylene oxide, a colorless gas highly toxic to insects but relatively non-toxic to man, and nine parts carbon dioxide. This mixture is non-flam-

mable and safe to use in the fumigation of foodstuffs, grain, tobacco, furs, clothing and furniture. It is widely used in apartments, houses, mills, warehouses, storerooms and ships.

Chlorasol, another fumigant product, is a liquid mixture of ethylene dichloride and carbon tetrachloride. This fumigant is more particularly adaptable to use on furs, clothing and other household goods not affected by the odor of the fumigant.

Pharmaceutical

The making of almost every pharmaceutical product involves the use of some



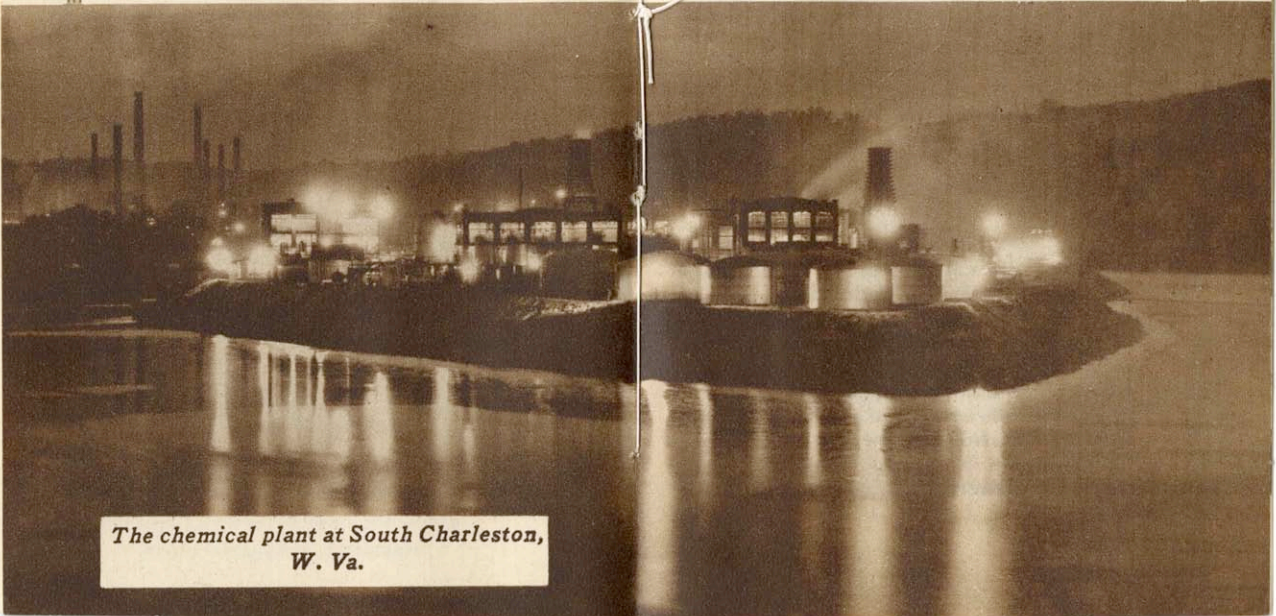
Methyl Cellosolve seals moisture-proof wrapping materials



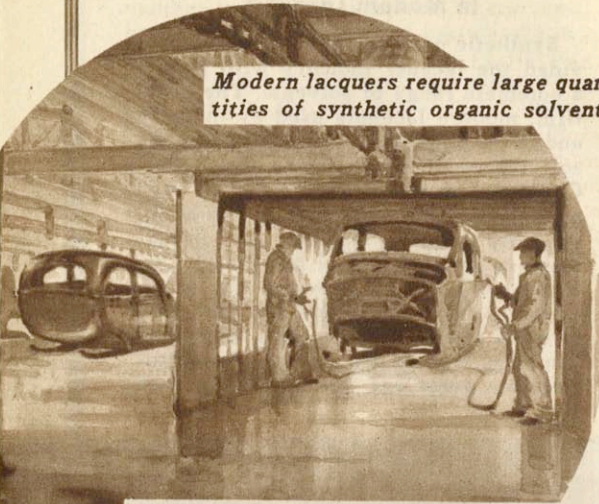
synthetic organic chemical. Acetic anhydride is one of the chief ingredients in the making of Aspirin. Next to water, ethyl alcohol is the most important solvent used by the pharmacist in the making of antiseptic solutions and tinctures. Tank car quantities of ethylene dichloride concentrate Vitamin D from cod liver oil and make possible the preparation of odorless, tasteless tablets of this concentrate. Alcohol and ether are important glandular extractants in the making of insulin, while ethyl acetoacetate is the raw material from which is made the fever reducing compound, Antipyrine. The local anesthetic, Novocaine, is made from ethylene chlorhydrin.

In Modern Lacquers

Synthetic organic chemicals have provided the lacquer industry with almost a complete range of solvents. The beautiful, modern lacquers used by industry and in the home are made possible by the solvents which chemistry has developed. Cellosolve, for example, is widely used as a solvent in the manufacture of nitrocellulose lacquers. It is also used in varnish removers. Carbitol and Butyl Carbitol are excellent solvents for nitrocellulose in lacquers and are used also in wood stains. Butyl acetate as well as isopropyl acetate are solvents for nitrocellulose gums and resins and are used



*The chemical plant at South Charleston,
W. Va.*



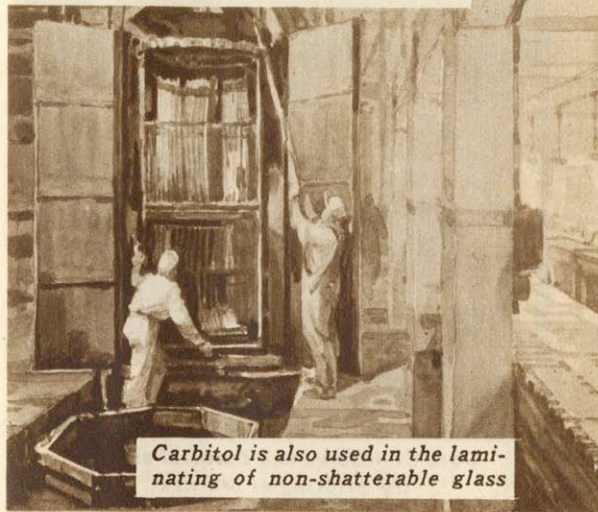
Modern lacquers require large quantities of synthetic organic solvents

in lacquers as well as in the manufacture of pyroxylin plastics and photographic films. Dioxan is a solvent for a wide variety of resins including both the alcohol- and oil-soluble types.

Textile

The textile industry today depends upon the synthetic organic chemicals as solvents for dyes, lubricants for materials and process solvents in the production of certain rayons. Acetone is an especially valuable process solvent in the production of rayons and artificial leather. Acetic anhydride, a more recent synthetic development, is an important raw material in the manufacture of cellulose acetate

used in the production of rayon. Diethylene glycol has found wide application in the textile industry not only as solvents for dyes in the printing of fabrics but also as a lubricant for wool, worsted and rayon. Cellosolve is used in cleaning solutions and dye baths, and in the printing or dyeing of textiles increases the solubility of the dye giving brighter shades and faster colors. In printing and dyeing, the use of Carbitol as a solvent for the dyestuff results in better penetration as well as deeper and brighter shades. Ethyl ether in combination with alcohol is a nitrocellulose solvent used in the manufacture of rayons. One of



Carbitol is also used in the laminating of non-shatterable glass

the largest uses of synthetic methanol is in the preparation of formaldehyde, large quantities of which are used for the manufacture of textile dyeing compounds.

Soaps and Emulsions

A great many soaps and cosmetics in every day use owe their special properties to the use of synthetic organic chemicals. Triethanolamine, diethanolamine and monoethanolamine are synthetic organic compounds which are used in the production of soaps with unusual characteristics. These soaps are used as emulsifying agents in cosmetics, textile spe-



Both Cellosolve and Carbitol aid in the printing of textiles

Many cosmetics owe their special properties to synthetic organic chemicals

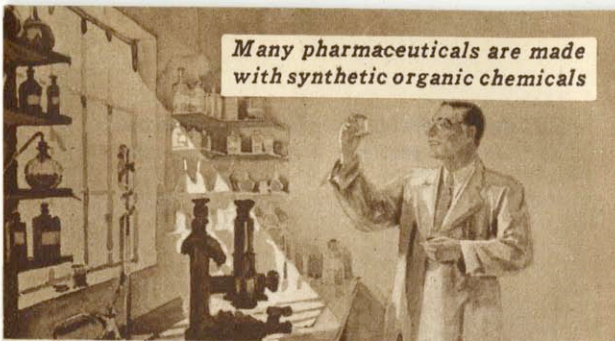


cialties, cutting oils and polishes. Carbitol, when used in cleansing creams, cold creams and after-shaving creams, retards the drying of the cream and has a softening and soothing action upon the skin.

In the Petroleum Industry

Dichloroethyl ether, a stable chlorinated solvent of low flammability which is sold under the trade name of Chlorex, is used by the petroleum industry for the production of lubricating oils of superior qualities. The extraction process is known as the Chlorex process. Activated carbon, the active ingredient of the "gas mask," is used in the extraction of

Many pharmaceuticals are made
with synthetic organic chemicals



gasoline from natural gas and the selective adsorption and purification of various gases.

Research

The Technical Division of Carbide and Carbon Chemicals Corporation cooperates with customer industries on problems where any possible use of the Corporation's products is indicated. The products mentioned in this book are but a few of the numerous synthetic organic chemicals produced. The research work continues, and the list of commercialized products grows every day.

If you are contemplating the use of synthetic organic chemicals, you will be interested in the book, "Synthetic Organic Chemicals."

Ask for this book at the Union Carbide and Carbon Corporation exhibits at *A Century of Progress*, or write for it to:

UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street
New York, N. Y.



PRODUCTS OF CARBIDE AND CARBON CHEMICALS CORPORATION

Acetic Anhydride	Ethylene Oxide
Acetoacetanilid	Hexone (Methyl Isobutyl Ketone)
Acetone	Hexyl Alcohol
Activated Carbon	Isobutane
Butane	Isobutyl Alcohol
Butyl Acetate	Isobutyl Acetate
Butyl Alcohol	Isopropyl Acetate
Butyl Carbitol	Isopropyl Alcohol
Butyl Cellosolve	Isopropyl Ether
Butyl Ether	Methane
Butylene	Methanol
Butyraldehyde	Methyl Acetoacetate
Butyric Acid	Methyl Acetate
Butyric Anhydride	Methyl Acetone
Butyrene	Methyl Amyl Acetate
* Carbitol	Methyl Amyl Alcohol
Carbitol Acetate	Methyl Carbitol
* Carboxide	Methyl Cellosolve
* Cellosolve	Monoethanolamine
Cellosolve Acetate	Octyl Acetate
Chlorasol	Octyl Alcohol
Chlorex	Octyl Aldehyde
Crotonaldehyde	Propane
Dibutyl Phthalate	Propionic Anhydride
Diethanolamine	Propylene
Diethyl Sulphate	Propylene Chlorhydrin
Diethylene Glycol	Propylene Dichloride
Dimethyl Phthalate	Propylene Glycol
Dioxan	Propylene Oxide
Ethane	* Pyrofax
Ethyl Acetoacetate	Triasol
Ethyl Alcohol	Trichlorethylene
Ethyl Butyl Acetate	Triethanolamine
Ethyl Butyl Alcohol	Triethylene Glycol
Ethyl Ether	Triethylene Tetramine
Ethylene	Vinyl Acetate
Ethylene Chlorhydrin	Vinyl Chloride
Ethylene Diamine	* Vinylite Resins
Ethylene Dichloride	(Solids and Solutions)
Ethylene Glycol	

* Trade Mark Registered

Read These Books Too

If you have found this booklet interesting, you will undoubtedly enjoy the others in this series:

- A - UCC Products for Oxy-Acetylene Welding and Cutting
- B - UCC Products for Oxygen Therapy
- C - UCC Lighting Carbon Products
- D - UCC Industrial Carbon Products
- E - UCC Pyrofax Gas
- F - UCC Synthetic Organic Chemical Products
- G - UCC Vinylite—The Thermoplastic
- H - UCC Products for Alloy Steels and Irons
- I - UCC Carbon and Graphite Electrodes and Specialties
- J - UCC Haynes Stellite Products
- K - UCC Eveready Flashlights and Batteries
- L - UCC Eveready Prestone
- M - UCC Eveready Layerbilt "B" Battery
- N - UCC Condensed List of Technical Literature
- O - UCC Condensed List of Products and Principal Subsidiary Companies
- P - UCC Story of Air and Linde Liquid Air Demonstrations
- Q - UCC Story of the Electric Furnace

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