

Liquid Carbolic Acid.—Uses—As a liquid antiseptic and as the active principle of disinfectant soaps, powders, etc.

Naphthalene.—Uses—For carburetting gas; for disinfecting purposes; for driving explosive motors; for preserving raw hides; and, sometimes also for fuel. Crude naphthalene is usually employed for the above purposes.

Derivatives.—Pure naphthalene is the starting point in the manufacture of a large number of important artificial colors (phthalein colors, azo-colors, indigo, etc.).

Heavy Oil; also called Creosote oil.—Uses—As an illuminant where smoke is no objection; as an antiseptic; as a timber preservative; as a lubricant; as a binder, when mixed with pitch, in the manufacture of patent fuels; as a fuel, and as a solvent.

50% Anthracene.—Uses—Not important.

Derivatives.—Anthracene is the raw material from which alizarin and other important coloring matters are manufactured.

Anthracene Oil.—Uses—For lubricating purposes; for timber preservation; for making soft from hard pitch; for removing naphthalene from coal gas.

Pitch.—Uses—For road making; for preparing artificial asphalt by admixture with heavy oil; for manufacturing varnishes by admixture with middle oil; for making patent fuels, after softening by admixture with heavy or anthracene oil; for insulating cables,

etc.; for roofing; and for making coke for electric carbons.

U. S. BUREAU OF MINES REPORT ON COAL TAR PRODUCTS.

The United States has recently been brought to a realization of its dependence upon German sources for coal-tar and "gas benzol" by-products, and this unenviable situation, which applies to Canada as well, is no more to their liking than it is to ours. With characteristic alacrity, however, which by the way, our department might advisedly emulate, their Bureau of Mines has published a synoptical and comprehensive pamphlet* pertaining to the ability of the United States to meet its own requirements in these commodities. Such published information will undoubtedly serve to stimulate the industries involved to greater effort; and as it is of great moment to us in Canada as well, and as we possess the same potentials for like industries, it is of timely interest to extract some of the salient features from this pamphlet.

Coal-tar in general comprises from 3 to 5 per cent. of bituminous coal (by weight), say 7 gallons per ton of coal. Ten per cent. of coal-tar can be made into drugs and dyes. Ninety per cent. of coal-tar can be made into pitch and various heavy oils.

A table showing the crude fractional distillation products of coal tar with their uses is given and is as follows:

Fractions of Average Coal Tar and Their Uses.

First crude separation by distillation.	Light oil	Middle oil (or dead oil).	Heavy oil (including anthracene oil).	Pitch.
Temperatures of distillation.	70°-160°C.	160°-230°C.	230°-360°C.	Above 360°C.
Percentage in tar..	3.	8.	24.	65.
Intermediate products, by distillation or other expression.	Benzene, toluene, xylene, etc., phenol.	Phenol, cresols, etc.; naphthalene, heavy hydrocarbons.	Cresols, naphthalene, anthracene; heavy hydrocarbons; quinoline bases.	Soft pitch, . hard pitch.
Crude commercial products and their uses.	"Benzol" and solvent naphtha for solvents, paint thinners, motor fuel, gas. enrichment.	Creosote oil. Lamp black. Disinfectants. . . .	Road oils, impregnation of timber. Roofing tars. Paving tars.	Pitch, briquetting, protective paints.
Intermediate chemical products.	Nitro benzene, aniline salts, aniline oil, carbolic acid.	Carbolic acid, picric acid, phthalic acid, naphthols, naphthylamines, salicylic acid	Anthraquinone, alizarin.	
Refined chemical products, dyes, etc., and their uses.	Nitrotoluenes, diphenylamine and other ingredients of explosives; aniline dyes; hydroquinone and other photographic developers; drugs and medicines.	Picric acid, picrates and other nitro-compounds for explosives; naphthol dyes and colors, artificial indigo, refined carbolic acid.	Alizarin dyes.	

*Coal Tar Products and the Possibility of Increasing their Manufacture in the United States, by Horace C. Porter, with a Chapter on Coal Tar Products used in Explosives, by C. G. Storm. Technical paper 89, Bureau of Mines, 1915.