# COLLOIDAL SYNTHESIS OF CERTAIN READILY CRYSTALLIZABLE ORGANIC COMPOUNDS.[1]

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## Compounds Studied up to the Present. The Methods of Preparation of their Colloidal Solutions.

The colloidal synthesis of those organic compounds, which are obtained under ordinary conditions in crystals clearly seen by the naked eye, has not been extensively studied.[2]

Below are summed up the general results of the colloidal synthesis of eight organic compounds (naphthalene, papaverine, camphor, salol, benzophenone, anthracene, anthraquinone and phenanthrene). In the near future the list will be enlarged.

Two methods of colloidal synthesis were employed: A. The cooling of a solution.[3] B. The replacing of one dispersion medium by another.[4]

## General Results.

1. The first of the above five organic compounds give *stable* colloidal solutions only at *low* temperatures (e.g.–80°C.), in dispersion media consisting of concentrated (e.g. 68 per cent.) aqueous sucrose solutions congealed to glasses.

2. Colloidal anthracene solutions stable for not less than several months, are easily obtained e.g. by pouring into large volumes (99–495 c.c.) of distilled water of room temperatures, from one to several c.c. of alcoholic anthracene solutions (0.005–0.25 per cent).

3. Colloidal anthraquinone solutions obtained by pouring its alcoholic solutions into distilled water of room temperatures, are less stable than colloidal anthracene solutions. Colloidal phenanthrene solutions are very unstable at room temperatures, owing to the greater solubility of phenanthrene in water. Colloidal solutions of anthraquinone and phenanthrene of a markedly longer stability may be obtained at low temperatures, at about

(1) For more details, see *Kolloid-Z.*, **50–51** (1930), 164 etc.
(2) P. P. von Weimarn, "Die Allgemeinheit des Kolloidzustandes," I (1925), 228.
(3) P. P. von Weimarn, "Grundzüge der Dispersoidchemie," (1911), 69.
(4) P. P. von Weimarn, "Grundzüge der Dispersoidchemie," (1911), 67.

0°C. or lower, with water or weak aqueous sucrose solutions as dispersion media.

4. Anthracene and phenanthrene readily form disperse systems, the particles of the disperse phases of which are not three-dimensionally colloid, as is usual, but *monodimensionally* colloid, because the lengths and breadths of the disperse particles, crystalline lamellae, are of microscopical dimensions. Anthraquinone gives easily disperse systems, the disperse particles of which are *bidimensionally* colloid. The lengths of the disperse particles, crystalline needles, considerably exceed the ultramicroscopic size. The structure of these disperse particles was defined by ultramicroscopical observations of P.P. von Weimarn.

5. Micro-and ultramicroscopic observations by P.P. von Weimarn on benzophenone and salol disperse systems, obtained at room temperatures, have shown that these disperse systems, in the first stage of their existence, are emulsoids or emulsions ; later on they pass into suspensoids and suspensions. These observations can be generalized for the colloidal systems of other organic substances with relatively low melting points.

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