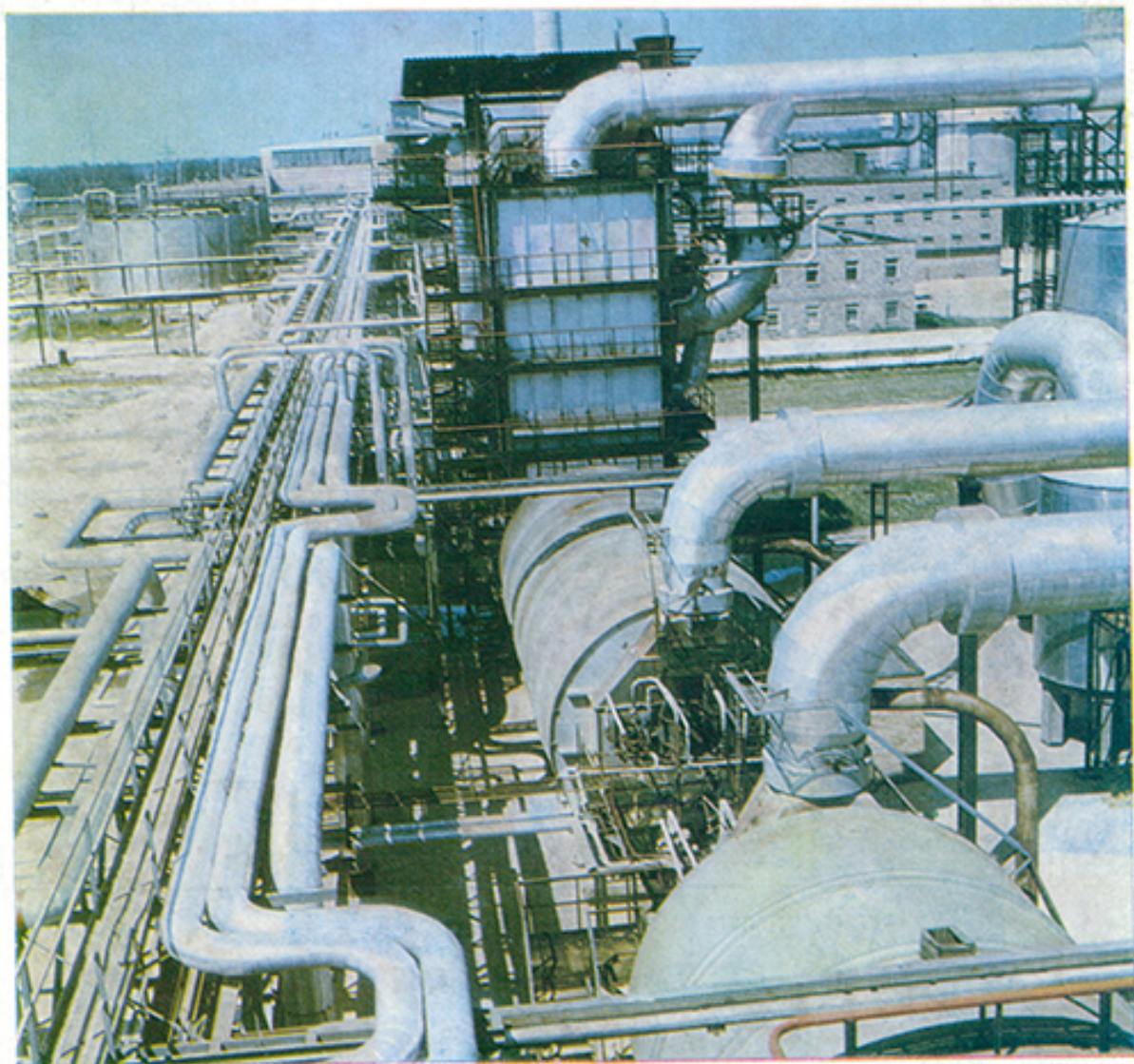




POLISH TECHNICAL REVIEW





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Synthetizing cyclohexanon from benzene

Cyclohexanon is the main by-product used for the manufacture of caprolactan. It is usually obtained by the classical oxidation of cyclohexane or by oxidizing by the boric method.

The Polish method of manufacturing cyclohexanon consists in using phenol as the starting material and oxidizing it without using boron compounds. The method also includes the chemical processing of the alkaline waste and the manufacture of many by-products, the most important among them being adipic, succinic and glutaric acids. The Polish method for synthetizing has been tested in a 2500 tons/year plant at the Nitrogen Works, Tarnów. Two plants, with a yearly production capacity of one line amounting to 25 000 and 50 000 tons, are now being erected.

Benzoic acid and sodium benzoate by means of toluene oxidation

Benzoic acid finds many industrial applications, including the manufacture of terephthalic acid, caprolactan and phenol. Sodium benzoate is used as a food preservative, anti-corrosive agent and a reliable additive to such silages as grass, markedly decreasing the loss of protein and other nourishing components. Up to 20 000 tons of the benzoate are used in Poland for the last-named purpose only, the total yearly consumption approaching 100 000 tons. Accordingly, the new Polish method of manufacturing benzoic acid and sodium benzoate, cheap and applicable in large plants, is of great importance. It consists in oxidizing toluene with air in a liquid phase, to be followed by separating benzoic acid by distillation.

The method is described by Professor Stanisław Ciborowski, its designer.

New developments from the Institute of Fine Mechanics

The Institute of Fine Mechanics is a research centre active in the design of new technological processes and equipment in the line of thermal treatment, protective electro-deposits and protective lacquer and plastics coatings. The information on the latest designs and methods developed by the Institute concerns the following subjects: the technology of oxynitriding, vacuum furnaces, immersion aluminizing of steel and cast iron, diffusion chromizing in gases, semi-automatic loaders for induction hardening, fast gas nitriding and sulphur-nitriding, glossy copper plating in acid bath and plasma spray coatings.

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