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PRESENT STATUS AND FUTURE PLANS OF THE DEVELOPMENT OF THE SYNTHETIC FIBRE INDUSTRY IN ROMANIA1/

by

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Historical review

Numerous ecoromic reasons have established a constant development of artificial and synthetic fibres industry in Romania.
Until 1959 the chemical fibers and yarns industry was represented by two units: "Viscofil" Bucuresti and "Viscoza"Lupeni, with a total amount of 3000 tons year.

This sector was further developed in two main branches: synthetic fibres and yarns production from petrochemical raw materials and artificial fibres,and yarns on celullose basis.

Certain specific reasons have contributed to the synthetic fibres branch development within the general development programme of the Romanian chemical industry.

Romania has natural resources-one of the main factors of the development of its modern chemical industry. These resources, mainly including methane,crude oil, salt, limestone, coal,pyrites and other ores, located and exploited in part in the last century-some even earlier,have become raw materials for the modern industry only in the last two decades,when, in fact the bases were laid for such a large industry in Romania.

Taking into account the place held by chemistry within the present structure of a national economy and mainly its development prospects and the country's industrialization programme, priority development has been given to the chemical industry, by a more efficient turning to account of the country's natural resources.

As a result of the expansion of a big relevant in the 1960-1970 period, By 1970 the extracted volume had trebled that of 1960. At the same period crud oil extraction increased from 11.500 tons to 14793 tons per year.

Going on the line of a maximum industrial use, of the above raw materials,the chemical industry has accordingly been equiped with powerful instalations upon the latest technologies for the production of acetylene,polyvinylchloride,polynitrilacrylic fibres (Melana), and, also of petrochemistry, comprising the chemical industry,using oil and oil derivatives as well as rock gases as raw materials.

Worth special mention here is also the impetuous growth of the production of synthetic fibres and yarns within the development of the overall production of chemical fibres, based entirely on petrochemicals intermediates.

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2. The actual status of synthetic fibres production.

The development of manufacturing of phenol, ammonia, Caprolactam, acrylonitril, vinylacetate, alphamethylstyrene, and other products which intervene in the pol mers synthesis, has laid the bases of the synthetic fibers industry development in Romania.

The synthetic fibres factory in Savinesti, first of Romania, Comprises two different units :

The relon unit - for polyamidic yarns, based on Caprolactam from phenol or benzene and Melana unit which in the actual stage uses methane for the production of acrylic fibres.

Relon unit - comprises old installations generally known as Relon I started up - on 1959 with a 2000 tons yearly capacity and further development Relon II and Relon III plants which were subsequently added - producing about 6600 tons per year synthetic fibres and yarns.

The research works made, enabled to improve the technologies and the output quality and to achieve important things, as follows : polyamidic chips, for plastics, of high viscosity, chips with graphite content for different mechanisms or with plasticisers, relon yarns dyed in mass for intensive coloured woven materials,etc.

Melana unit produces acrylic fibres according to a technological process improved in Romania. One of the essential characteristics of this procedure is use of ethylene carbonate as a solvent for polyacrylonitril. This thing as well as usage of some original copolymerization recipes and well determined forming conditions awards a high quality to Romanian acrylic fibres Melana.

The progress achieved in the semiindustrial pilot plant erected in 1959, Melana I and in the industrial plant Melana II with a 5,000 tons yearly capacity has decided erection of a new plant of 10.000 tons - based on domestic technology, which came on stream in 1970. The Acrylonitril - the basic monomer for Melana is mostly delivered by Chemical Complex Pitesti, being manufactured by propylene-ammonia procedure, much more economic than acetylene-cyanhydric acid procedure,still applied, at Savinesti.

Today, the synthetic fibres and yarns plant of Savinesti is manufacturing a

wide range of textile fibres, silk stretch yarns, technical yarns, etc.

3. Trends of future developments of synthetic fibres and yarns industry.

The chemical fibres and yarn production, which is given greater importance among the raw materials designed for the textile industry (60 p.c. of the total requirements in chemical fibres and yarns in 1975 on 40 p.c. in 1970), is to double its amount, and within the latter the production of synthetic fibers and yarns will go up by some 5,5 times. Herein in the table below the synthetic fibers output evolution in Romania :

	-thousand tons-				
	1950	1955	1960	1965	1970
Synthetic fibres and yarns	-	-	0,9	3,3	29,5
a/ Polyamidic fibres and yarns	-	-	0,6	2,1	6,6
b/ Acrylic fibres	-	-	0,3	1,1	12,5
c/ Polyester fibres and yarns	-	-	-	-	10,4

Following world trend, the new capacities will be mainly intended for polyester and polyacrylic fibres production.

In the 1974-1975 period above an additional production of nearly 13,000 tons chemical yarns and fibres is provided. Here is the evolution of the production of synthetic fibres and yarns in 1975 as against 1970, as well as their structure :

	Dynamics		Structure	
	1970	1975	1970	1975
Synthetic fibres and yarns				
Total amount	100	350	100	100
out of which :				
- polyesteric yarns and fibres	100	486	35,1	45,9
- polynitrilacrilic yarns	100	886	42,4	32,5
- polyamidic yarns and fibres	100	320	22,5	20,6

In Romania the output of synthetic fibres and yarns per head of population is to go up from 1,3 kg/inhabitant in 1970 to 4,9 kg in 1975 (above the world average provided for 4,72 kg per capita in 1970 and for 5,54 kg in 1975)

In the synthetic yarns and fibres, a great attention will be continously gi-

ven - for solving of all the problems related to application of the newest and most economical technologies as are: usage of cyclohexane as raw material for caprolactam, growth of acrylic fibres based entirely on propylene as raw material, use of acetylene with a higher efficiency degree for manufacturing of polyvinylalcohol fibres, having properties similar to cotton. Production of polyolefins will substantially develop in our country and in this respect manufacturing of polypropylenic fibres will be very important, taking into consideration their low production cost.

Besides polypropylenic yarns, new assortments of polyamidic yarns, polyesteric yarns and fibres, yarns for industrial use, will be manufactured, in order to diversify synthetic fibres and yarns production.

4. Research activity in the spinning polymers area

Research works related to the stereospecific polymerization of polypropylene enabled to elaborate a new technology for manufacture of polypropylene with original settlements concerning the catalyst and polymer purifying. The industrial plant that is to be erected will produce polypropylene intended as raw material for synthetic fibres and plastics. In our country the polypropylenic fibres represent a new research area and some of the results obtained are applied at industrial scale. One has obtained white, modified polypropylenic fibres, successfully used for carpets, technical purposes, etc.

In order to increase durability, new methods to manufacture modified fibres have been tested, blending different metal salts, during spinning process. A technology for manufacturing of polyester fibres from DMT and MEG has been established. They also achieved assorted synthetic fibres white and dyed with disperse dyes under the name Terom. Different technologies for manufacturing of copolyester fibres on such bases have been achieved, one of them being used for synthetic leather production. It is worth mentioning licenced procedure to manufacture PAN fibres on ethylene carbonate as a solvent and more economic copolymers than those in common use.

The future development trends in this area take into account: Improvement of technologies for obtaining of polymers and copolymers of current production.

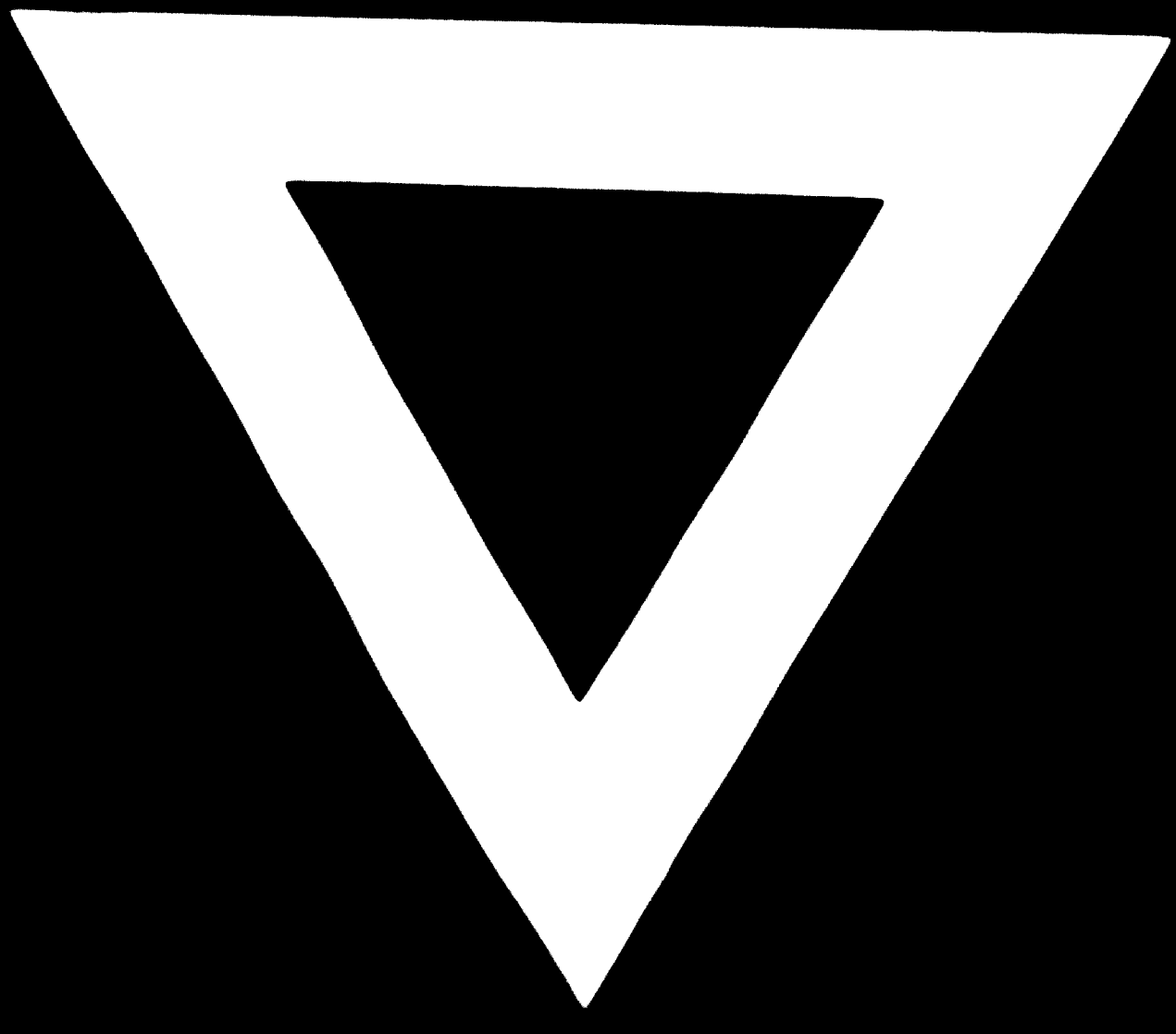
- Diversifying of polimers and Copolimers from domestic raw materials.
- Elaboration of new technologies for obtaining high quality, macromolecular products.-

Thanks to the experience accumulated in one and all sectors of chemistry, design, constructions, production, marketing, the training of cadres, Romania has possibilities of entering into reciprocally advantageous ternational cooperation relations in the economic, technical and scientific domains. In the synthetic fibre industry area, the romanian specialist enterprises can carry out designs and supply technologies as well as equipment and instrukations for manufacturing of synthetic fibres and monomers, as follows: acrylic fibres, poliamidic tyre cord, adipic acid, caprolactam, etc.

Romanian technical specialists are ready to discuss with manufacturers of synthetic fibres from other countries, problems regarding production of highly technical products, and advanced technological processes i.e : polypropilenic fibres and yarns, synthetic fibres with special properties, new types of synthetic fibres, etc.

On these basis and more than to Romania's conception concerning cooperation ventures, joint activities between romanian enterprises and foreign synthetic fibres manufacturers could be established.

The units of the Chemical Industry Ministry are ready to enter into every form of economic, technical and scientific cooperation and collaboration, on condition that the international principles and norms underlying Romania's external economic activities should be observed.-



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