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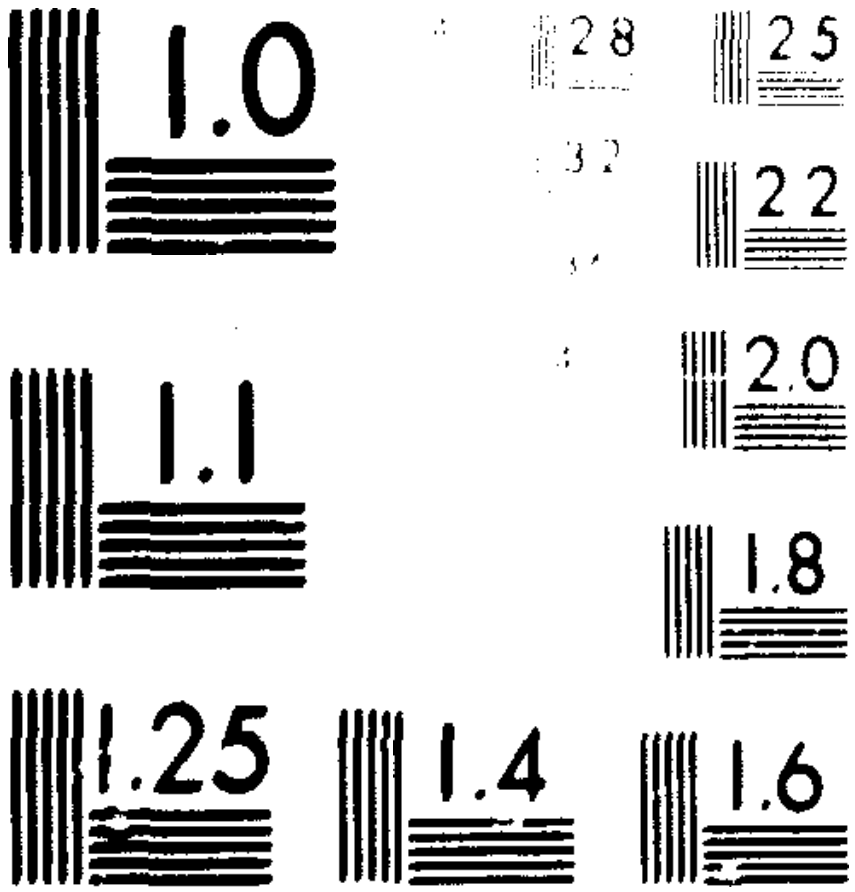

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Romania.

PRODUCTION OF FINISHING PRODUCTS FOR CHEMICAL FIBRES FABRICATION AND APPLICATION.

SI/ROM/82/802/11-51/32.1.4

ROMANIA

Terminal Report for First Phase of Split Mission

Based on the work of MASAMOTO WATANABE, expert in production of finishing products for chemical fibres fabrication and application.

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1982

EXPLANATORY NOTES

References to dollars ($) are to United States dollars. The monetary unit in Romania is the "leu" (plural "lei"). During the period covered by the report the mean value of the "lei" in relation to the United States dollars was $ US 1 = 11.0 lei.

I N T R O D U C T I O N

The textile industry in Romania, which in 1975 ranked fifth of total industrial production and employed 12.4% of the total labour force, has been steadily growing, production in 1975 being 20 times that of 1945.

In 1982, Romania had 6 factories producing synthetic fibres. Acrylic fibres, Melana, are produced at Săvineşti plant. Its capacity is about 50,000 t/y, about 50 % is top, 35% is staple fibre, 15% is tow. Mass dyed acrylic fibres are produced about 10 - 1,000 t/y by pilot plant.

Polycaproamide fibers, nylon-6, Relon, are produced at Săvineşti and Roman plants. The capacity of Săvineşti Relon plant is 12,000 t/y for silk- type filament, 3,500 t/y for carpet yarn, 3,000 t/y for staple fibre, 10,000t/y for tire-cord, and industrial use and 2,500 - 3,000 t/y for tip of plastics,. The capacity of Roman plant (2 years ago constructed) is 5,000 t/y for silk-type filament 10,000 t/y for tire-cord, and 5,000 t/y for staple fibre.

Polyester fibers, Terom, are produced at Iaşi, Vaslui and Cîmpulung Muscel plants.

The capacity of Iaşi plant is 52 t/day yarns (in termăX of 150 denier). Yarn breckage for conventional spinning is 6% and high speed spinning is max. 2/100 spindle hours.

The capacity of Vaslui plant is 12,000 t/y and 50%POY spinning 50% industrial y rn. POY is 50 and 1,500, and industrial yarn is 1,000 and 10,000 D. 50% of POY is processed by draw texturing.

The capacity of Cimpulung Muscel plant is 50,000 t/y and just started this year by continuous polymerization by Toray and Chemtex technologies. It is producing 50% polyester staple fiber and 50% tips.

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FINDING AND QUESTIONAIRE

I visited Iaşi polyester plant on October 19th 1982 and I fond as follows:

1. Spinning speed for undrawn yarn is about 1,100 m/min. That speed is slow in comparison with Japanese polyester yarn producer's speed (ex. Toray : 1,500- 2,000 m/min.).

2. Spinning speed for POY yarn is about 1,700 m/min. That speed is slow in comparison with Toray's POY yarn speeds (3.000 - 3.500 m/min.).

3. Quantity of windingbbbbins for undrawn yarn and POY yarn is about half size compare with Toray's products.

4. Iaşi plants are using all spindle type draw texturizing machines and their speed is about 200 m/min. Toray plants are using friction type draw texturizing machianes and their speed is about 400 m/min.

5. There are conditioning rooms for undrawn yarn and POY yarn before streching. However in Japan, about 10 years ago, yarn producers developed no conditioning technology, then presently we cannot find such conditioning rooms.

R E C O M M E N D A T I O N S

Satisfactory performance of chemical fibres is to a great extent dependent on the application of an adequate process oil and finishing oil.

Yarn breakages for spinning-winding in polycaproamide fibre Relon production are about 8-10%, and for drawing are about 15-20%. These yarn breakages are much bigger in comparison with international industrial level. One reason of such big yarn breakage depends upon inadequate process oil and finishing oil.

Fibre finishing oil must meet highly sophisticated requirement and will provide a number of important properties such as: antistatic, slippage, good adhesion between fibres.

Romanian chemical fibre industry is presently importing all these ~~products~~ process and finishing oil products.

However, the chemical industry of Romania produces chemical products which could be used for process oils and finishing oils manufacture: ethoxylated products, polyglycols, amines, etc.

The purpose of this project is to assist the manufacture of process oils and finishing oils for acrylics, polycaproamides and polyester chemical fibres, using indigenous raw material.

I recommendedto Săvinești and Iași engeneers several adequate process oils and finishing oils which Japanese chemical fibres producers are using for production of acryles, polycaproamide and polyester fibres.

.//.

I will send these samples of process oils and finishing oils to Săvineşti and Iaşi until November 15 1982. Then they will test them by pilot plant.

If these Japanese process oils and finishing oils obtain adequate good result, they want to produce them using indigenous raw materials.

In order to produce such process oils and finishing oils, they have to know the components of these products. For this purpose I recommend an exact analysis of these products by Toray Research Center ~~of~~ Inc Japan.

The expenses of analysis for these products are about 35.000.. U.S. dollars. However government of Romania cannot provide such money for this project. I strongly request to provide 35.000.. US dollars to this project for analysis of process oils and finishing oils.

I would like to know the answer of UNIDO for PRoviding money to this project for analysis of process oils and finishing oils until end of November 1982.

I recommended for Iaşi engineers the following items:

1. For slow spinning speed of undrawn yarn and POY, should be selected adequate process oils.

2. After returning Japan, I will select several process oils and send to Iaşi plant.

3. Iasi plant engeneers will test spinning using Japanese process oils, then the best oils will be asked to analysis by Toray Research Center Inc.

4. After establish the components of oils they will be able to produce such oils using indigenous raw materials.

5. I recommended doing research for the modified polyesters having affinity for basic types dyes, derived from the copolymerization products of polyethylene glycol terephtalate with sodium 3,5

dicarbomethoxy benzene sulfonate.

Cation - dyable modified polyester fibre and staple fiber have been developed by DU PONT and TORAY and widely used for textile fabrics and yarns in America and Japan.

6. I recommended doing research for polyester bottles using special copolymer of polyethylen glycol terephthalate. Toray recently developed such polyester bottles and widely are used for food industry and getting big profit.

7. I recommended the high speed winding machines for polyester undrawn yarn and POY made by Toray Engineering Co.