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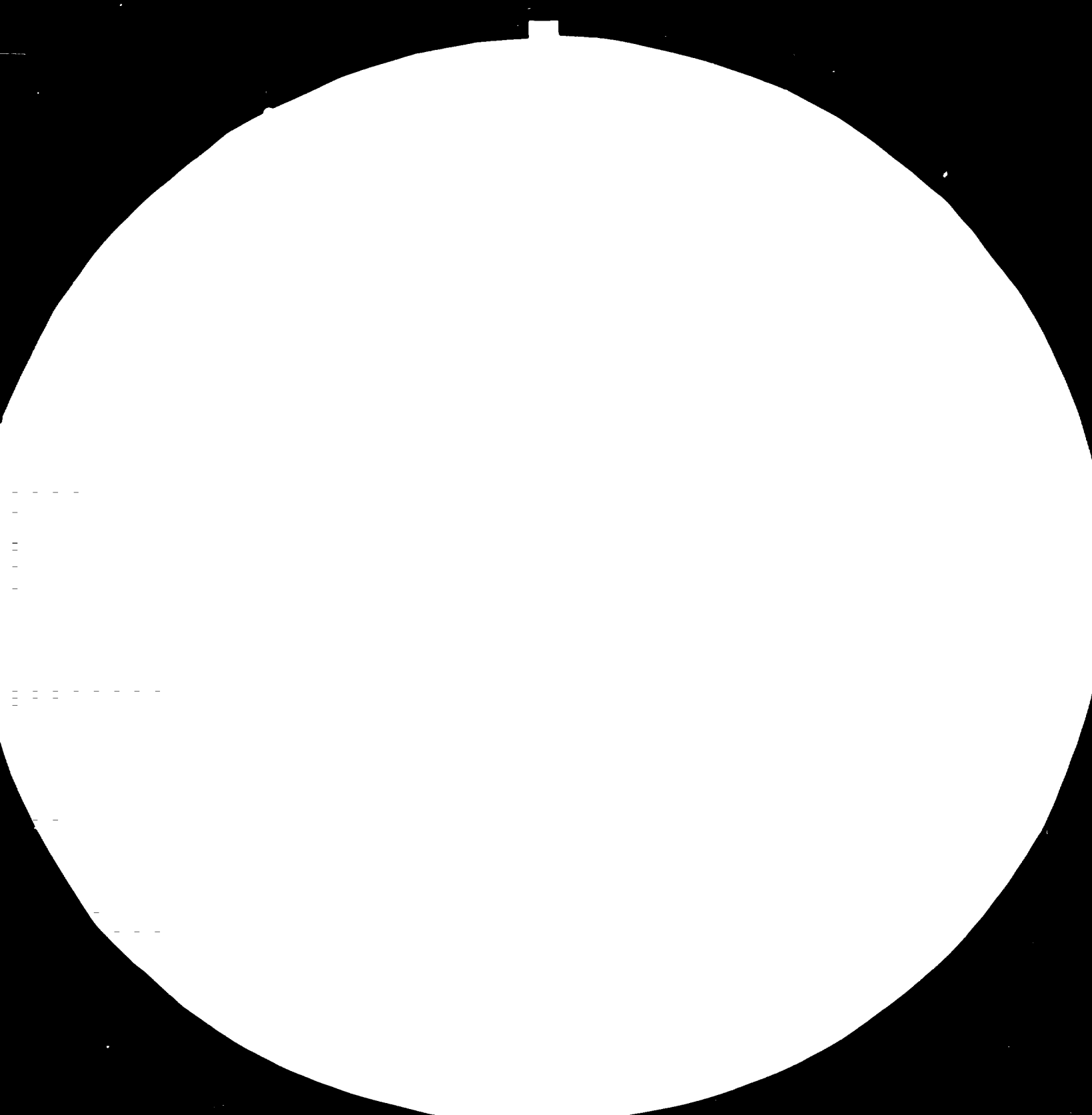
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1.8

2.5

2.0



2.2



Resolution Test Chart
1.0 1.1 1.25 1.4 1.6 1.8 2.0 2.2 2.5

RESTRICTED

12774

Tokyo, August 17, 1982

Project No. SI/VIE/78/805/11-01

Report on directions about the manufacture of
Artificial Leather and Rubber Latex Coated
Cloth in Vietnam

Introduction:

I had a meeting with Vietnamese staffs in accordance with their request on the matter of manufacturing artificial leather and rubber latex coated cloth at the Ministry of Light Industry in Hanoi, Vietnam during a period of April 11 to April 15. I was engaged in three types of consultant work at the factory in Hochiminh city, Vietnam during my stay from April 16 to June 30.

First was a lecture on the high polymer, natural rubber, raw materials, manufacturing process for artificial leather and rubber latex coated cloth.

Second was practical guidance as a leader and consultant to the staff and operator to make artificial leather and natural rubber latex coated cloth.

Third was practical guidance as a leader and consultant to the staff to make natural rubber latex coated cloth.

My Impression, suggestions and observation are as follows:

(1) Outline of machine equipment in the factory

(1)-1 : Needful machines & equipment are well equipped for manufacturing vinyl film, vinyl sheet, pipe, vinyl leather and artificial leather, but two intensive mixers are damaged and demanded to be repaired. The damaged intensive mixers cannot be repaired in Vietnam, so two lines of calendering machine for manufacturing poly vinyl goods remain idle.

(1)-2 : Some of hydroelectric plants were damaged, because electric power supply is very poor. They have two dynamos (total 110KW), but those dynamos are scarcely operating, because dynamo oil is in short supply and very difficult to get in Vietnam.

(2) Lecture and advice on artificial introduction

(2)-1 : Lecture of chemical quality and chemical reaction about raw materials.

Example : polyurethane resin, stabilizer, plasticizer, pigment, filler, paper, cloth and solvent etc.

These materials are wanting and the supply is quite limited.

(2)-2 : Machines & equipment for manufacturing artificial leather.

(2)-3 : Adhesive materials for PVC sheet and cloth.

(2)-4 : Melting process of high polymer into solvent.

(2)-5 : Function of stabilizer for PVC resin

Stabilizer is very effective for preventing decomposition and deterioration of PVC resin. They are classified into Barium, Cadmium, Zinc Lead, Calcium and Tin etc.

(2)-6 : Coating process of polyurethane solution on coating speed and oven temperature.

(2)-7 : Outline of coating process

release paper → polyurethane solution coating on the release paper put napped cloth together polyurethane leather surface → drying.

(2)-8 : Explanation of polyurethane solution coating machine.

(2)-9 : Polyurethane raw materials are wanting and they have to be imported.

Example : napped cloth, polyurethane resin, solvent (dimethyl formamide, cyclohexanone, methyl isobutyl keton)

(2)-10: Replacement of spare parts of coating machine in order to put the plant into operation.

(2)-11: Preparing specifications including laboratory equipment and instrument for quality control:

(3) Artificial leather manufacturing process
Explanation on artificial leather

(3)-1 : Guidance on recipe of PVC compound about stabilizer and plasticizer for PVC resin.

(3)-2 : Blending process of PVC compound

(3)-3 : Sheeting process of PVC compound to make PVC film, sheet and leather

(3)-4 : Artificial leather forming technique in the oven, about temperature and speed.

(3)-5 : Surface treatment technique and coating technique of leather with surface treatment materials.

(3)-6 : Directions for making artificial leather as follows:

base cloth → adhesive material coating → base forming PVC sheet on the cloth → printing → transparent color film → forming (in the oven) → embossing → surface coating acryl resin solution or polyurethane solution → inspection

(3)-7 : Polyurethane coated leather

Explanation for making artificial polyurethane leather

(3)-7-1 : Guidance on recipe of polyurethane coated leather, raw materials.

(4) Natural rubber latex coated cloth

(4)-1 : Lecture on natural rubber latex coated cloth, recipe of latex compound, raw materials, coating process, coating machine and valcanizing process.

(4)-2 : Latex coating process on the cloth with a knife coater. About coating speed, drying temperature and latex coating thickness.

(4)-3 : Machine equipment for coating latex compounding solution. Knife coating machine and valcanizing oven should be equipped.

(4)-4 : Water dispersion colour pigment is needful to blend into latex.

(4)-5 : Latex coating and blending test

Several times, test coating were carried out. The staff and operators appear to have studied and understood well how to make latex coated cloth.

(4)-6 : Valcanizing of latex coated cloth.

For checking curing temperature and coating speed, a curing chamber is necessary, because they have no valcanizing chamber.

(5) Conclusion

(5)-1 : It will be helpful for Vietnam to receive a technical expert to guide how to make various artificial leathers and natural rubber latex coated cloth. But the guidance term was so short this time that it would be advisable to carry out this type of guidance several times more hereafter considering the fact that electric power and raw materials are very poor in Vietnam.

(5)-2 : Above raw materials being very difficult to get, in Vietnam, it is quite necessary to secure the supply for running the plant.

(5)-3 : Natural rubber latex coating machine and valcanizing chamber should be equipped.

(5)-4 : One calender machine and two rubber mixing rolls are necessary to blend raw materials into rubber. This is a plan for making rubber cloth from smoked rubber and crepe rubber.

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