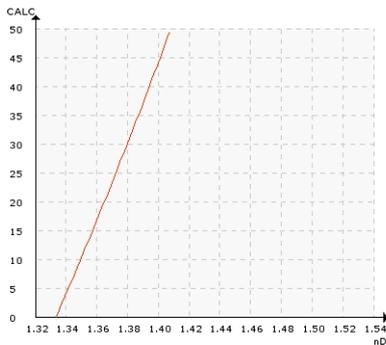


SIZING AGENTS, STARCH, CARBOXYMETHYL CELLULOSE (CMC), POLYVINYL ALCOHOL (PVA)

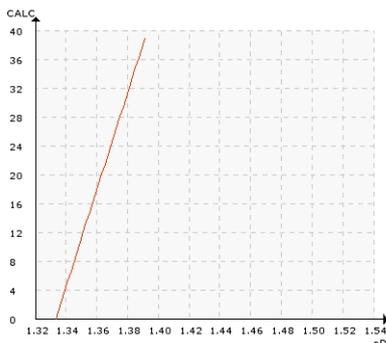
Typical end products

Textile yarn

Chemical curve: Polyvinyl alcohol R.I.per Conc% b.w. at Ref. Temp. of 20°C



Chemical curve: Starch R.I.per Conc% b.w. at Ref. Temp. of 20°C



Introduction

The yarn sizing process is essential in reducing breakage and thus avoiding stoppages during weaving. Improved quality, as well as smoother surface finish, will be achieved by sizing the strength and abrasion resistance of the yarn. Different types of water soluble polymers called textile sizing agents/chemicals such as modified starch, polyvinyl alcohol (PVA), carboxymethyl cellulose (CMC) and acrylates are used to protect the yarn. Mixtures of the former mediums and other chemical components are also used.

Application

Before the yarn can be woven, it needs to be strengthened to withstand the stress sustained in weaving on a high speed industrial looms. For this purpose, the yarn is passed through a sizing bath that contains the sizing medium, mixed with water and other additives depending on the formula.

The sizing medium is mixed to achieve the correct level of concentration before loading it into the sizing bath. If starch is used, the mixture has to be cooked before it can be used. Usually the cooking or mixing station is situated close to the sizing bath and may serve several sizing lines.

CHEMICALS AND ALLIED	
APPLICATION NOTE	4.05.04
TEXTILE SIZING PROCESS	

After the initial mixing, the product is pumped into a product tank. From there, it passes to a final mixing tank, where it is mixed to the required concentration level before loading it into the sizing bath. The mixing tanks are equipped with a load gauge so a specific quantity of the medium can be mixed for each textile batch. After the initial mixing and cooking, the concentration of the medium is typically 16-18% and after the final mixing it is at 6-10%. Recycled sizing medium can sometimes be added to the final mixing to adjust the concentration of specific yarns.

depending on evaporation and yarn absorption. The K-Patents Process Refractometer PR-23-GP is usually mounted in a circulation loop to provide adequate product flow across the prism. Typical concentration levels are 5-15%.

The K-Patents refractometer is also used to measure concentration levels in the product tanks, or during mixing, to ensure correct concentration levels. A steam cleaning system is recommended for the above installation positions.

Installation

Concentration levels have to be monitored in the sizing bath as the concentration may fluctuate

Instrumentation	Description
	<p>K-Patents Process Refractometer PR-23-GP is an industrial refractometer for large pipe sizes and tanks, cookers, crystallizers and kettles. Installation through a flange or clamp connection.</p>
<p>Measurement range:</p>	<p>Refractive Index (nD) 1.3200 – 1.5300, corresponding to 0-100 % by weight.</p>