

HISAKA "Super-critical Dyeing and Treatment"

A dyeing technology of dreams, CO₂ super-critical dyeing does not require water at all.

CO₂ super-critical dyeing is a technology of the near future. As it does not discharge wastewater and does not require drying, it is environmentally friendly. We are continuing to develop this technology.

The technology of CO₂ super-criticality is expected not only for dyeing but also the application to special processes, cleaning and function investing.



Feature

If the super-critical state is released after completion of dyeing, the fabric can be taken out as dry condition. CO₂ once returns to gas when releasing the pressure, but CO₂ is pressurized and compressed in the next process to collect and store as liquid CO₂. Thus, super-critical dyeing does not discharge the wastewater, is the epoch-making dyeing technology which is reused CO₂ from liquid to liquid through super-critical state and gas state in the closed system. Since very high pressure is required for super-critical state, the design pressure of equipment pressure is designed by 30MPa.

Comparison (Polyester Process)

	Water Dyeing	Super-Critical Dyeing
Steam Use <small>(Super-Critical is pressure energy such as gas, etc)</small>	188,000kcal	32,000kcal
Electricity Use	55,000kcal	130,000kcal
Drain Treatment <small>Same as gross water use (9,000 Lit)</small>	41,000kcal	—
Gross Energy	284,000kcal	162,000kcal

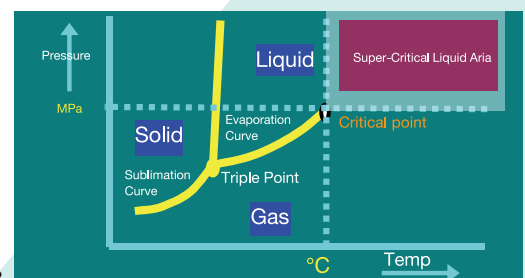
- ① 43% of energy reduction is possible.
- ② Water and Chemical (Disperse agent, Leveling agent, and RC agent) is needlessness
- ③ Drain treatment and Dryer is needlessness
- ④ CO₂ is possible for recovery use (Recovery Rate 96%)

From these merits, we can say that Supercritical Dyeing and Treatment contributes to eliminating the environmental destruction and water pollution.

Dyeing Sample



Equilibrium diagram of CO₂



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