

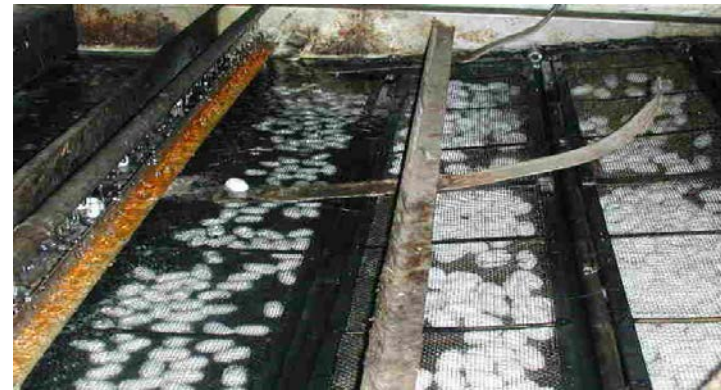
A decorative graphic consisting of a thin yellow circle on the left side. A thick, horizontal olive-green bar with a slight gradient is positioned across the middle. A large black left square bracket is on the left side of the bar, and a yellow right square bracket is on the right side. The text "Heian Oil Agents for Silk" is centered within the bar.

Heian Oil Agents for Silk

Heian oil chemical Ind. Co.,Ltd.

Raw Silk

- Some cocoons are boiled by water, and yarn plying with silk reeling machine.
- Boiled water process is for loosen sericin of cocoon.
- Assorted cone and hank forms.



Automatic reeling machine and raw silk of hank.



Silk

- 'Raw silk' and 'silk' are distinguished in the silk industry.
- 'Silk' is the fibroin fiber which is removing the sericin layer of 'raw silk'.
- This process is called scouring or degumming.
- We use soap, alkali or enzyme in the scouring process.

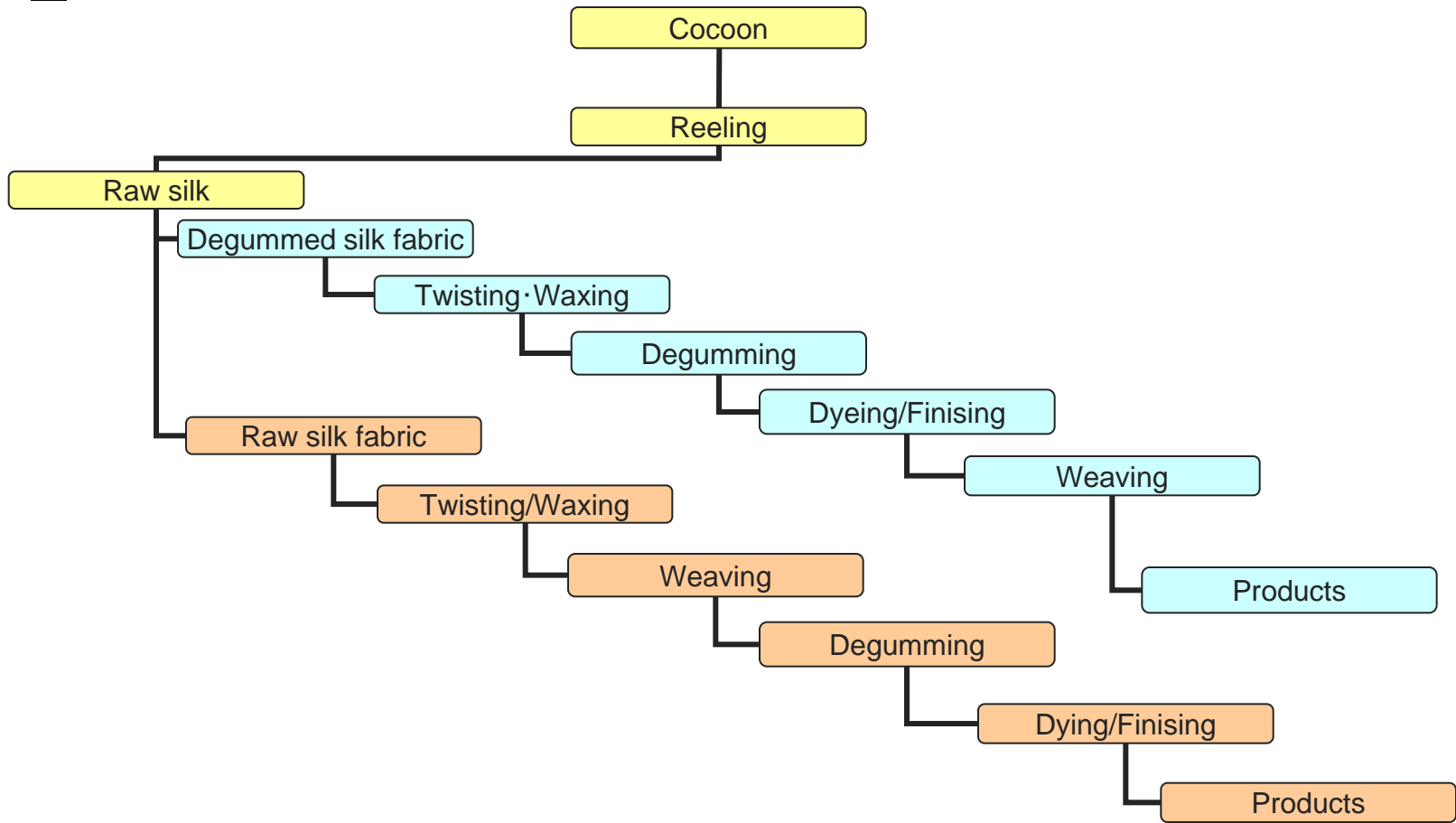
Fineness

- 1 denier (d): 1 gram in 9,000 meter
- Average fineness of cocoon is approximately 3 denier.
- Therefore, raw silk 20/22 (21 d) has reeled from about seven cocoons (3 denier/cocoon X 7).
- However, there is a difference in the fineness by portion and type of cocoon. It is character of natural fiber.

[Relationship between Heian Oil and silk industry]

- It is founded at Kyoto in 1934.
- Initiated to research of twisting yarn oil for raw silk.
- Developed raw silk soaking method to be absorbed by the dissoluble oil in water.
- We have been supplying the oil and agents not only domestic but also overseas.
- Our company is only manufacturer for silk textile chemicals in Japan.

Manufacturing process chart of silk products



[Our agents for each process 1]

- Reeling process
- Making raw silk from boiled cocoons. Boiled cocoon is easy to reeling by loosen sericin. We take repeated small frame in a automatic silk reeling machine. In order to improve the quality of the hank and subjected to a penetrating agent to the small frame.
- Recommended agents: Solusol LS, Silkyst SO

[Small frame and hank]



[Our agents for each process 2]

- Twisting process
- It is the step of plying and twisting the several or dozens of raw silk.
- Crepe Kimono is a necessity strong twisting (a couple of thousands twists / m). Yarn breakage happen frequently under the strong twisting condition. It must be subject to a smooth and softener agent for raw silk by soaking or press method. This soaking or press process is one of the most important step for high quality silk.
- Recommended agents: Emanol L-505,
Emanol L-SP-M

[Method of soaking and silk press]



[Our agents for each process 3]

- Waxing process

It is the process of increasing the cohesion of warp. In order to prevent occurrence of scratches and fluff due to friction between yarn and the loom, yarn requires lubricants, sizing agent, or wax for protection.

- Recommended agents: Warpon PA, Shift SA-5, Lorgel C-20

[Our agent for each process 4]

- Degumming process
- Raw silk or twisted yarn are degummed by hank dyeing machine. At raw silk fabric surface, the dense greige organization is degummed by loop kneading in a few hours.
- Recommended agents: Hophnal SL-OV, Hophnal L-MS, Liner P

Typical method of degamming



[Our agents for each process 5]

- Dyeing process
- For yarn dyeing, it is used the cheese dyeing machine or Hank Dyeing machine.
- At this process, it should pay attention to be worn peeling fibroin particle.
- Degummed white cloth are dyed by dipping or printing.
- Recommended agents: Soiless SR, Soiless TY, Liner P

[Our agents for each process 6]

- Finishing

This is a final process. Silk will be treated for washing resistance, flexible or polish improvement by agents.

- Recommended agents: Solusol LS, Solugel W-08, Sure-pass 2000-P