

Hypochlorite bleaching H

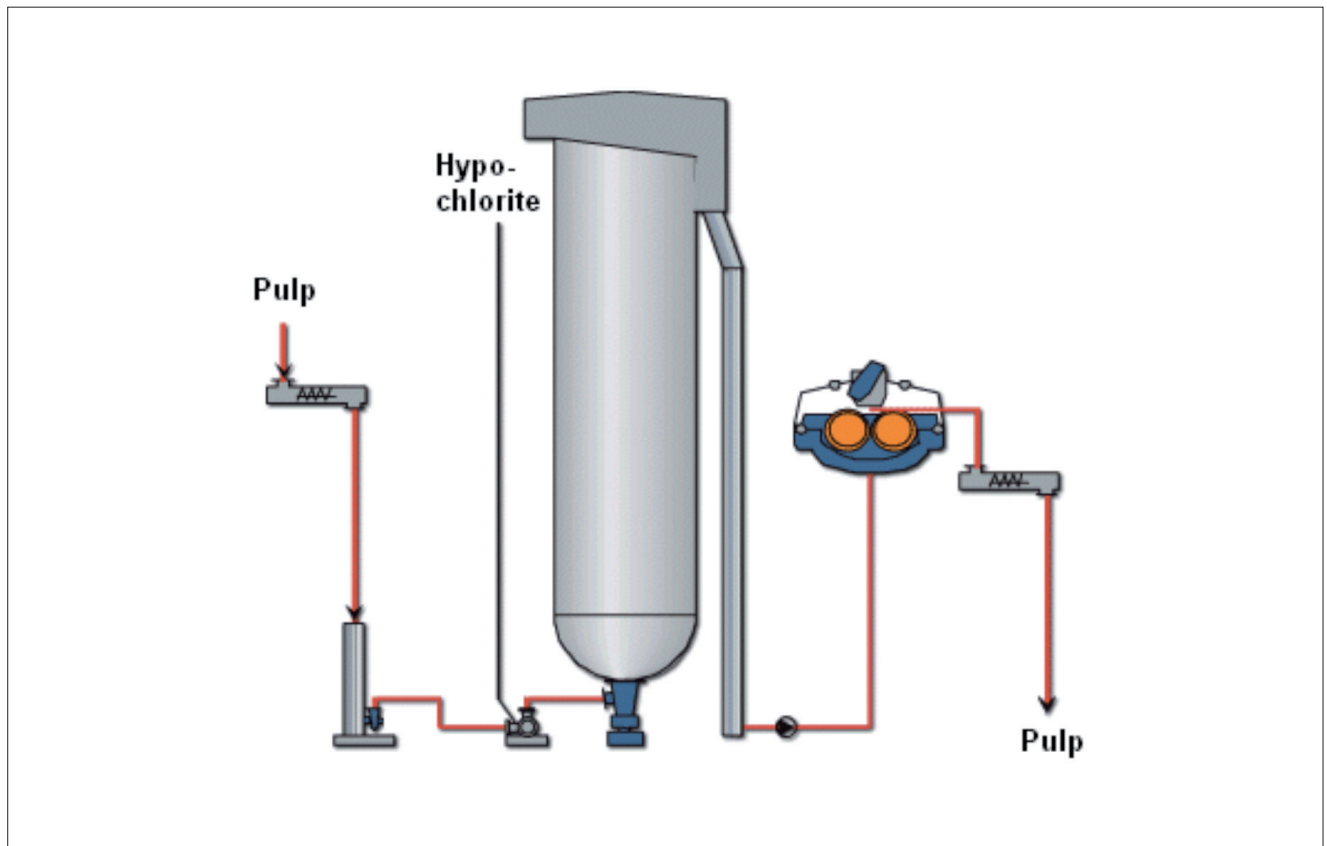


Fig. 1. Hypochlorite bleaching.

The process

In hypochlorite bleaching, pulp is brightened as the chemical destroys and removes the residual lignin and lignin derivatives. Hypochlorite use is quite rare nowadays, but it is still used for adjustment of pulp viscosity. Hypochlorite bleaching stage is quite similar than chlorine dioxide stage.

Table 1 shows typical conditions in hypochlorite bleaching.

Table 1. Conditions in hypochlorite bleaching.

pH	10
temperature	40 - 50 °C
time	1 - 2 h

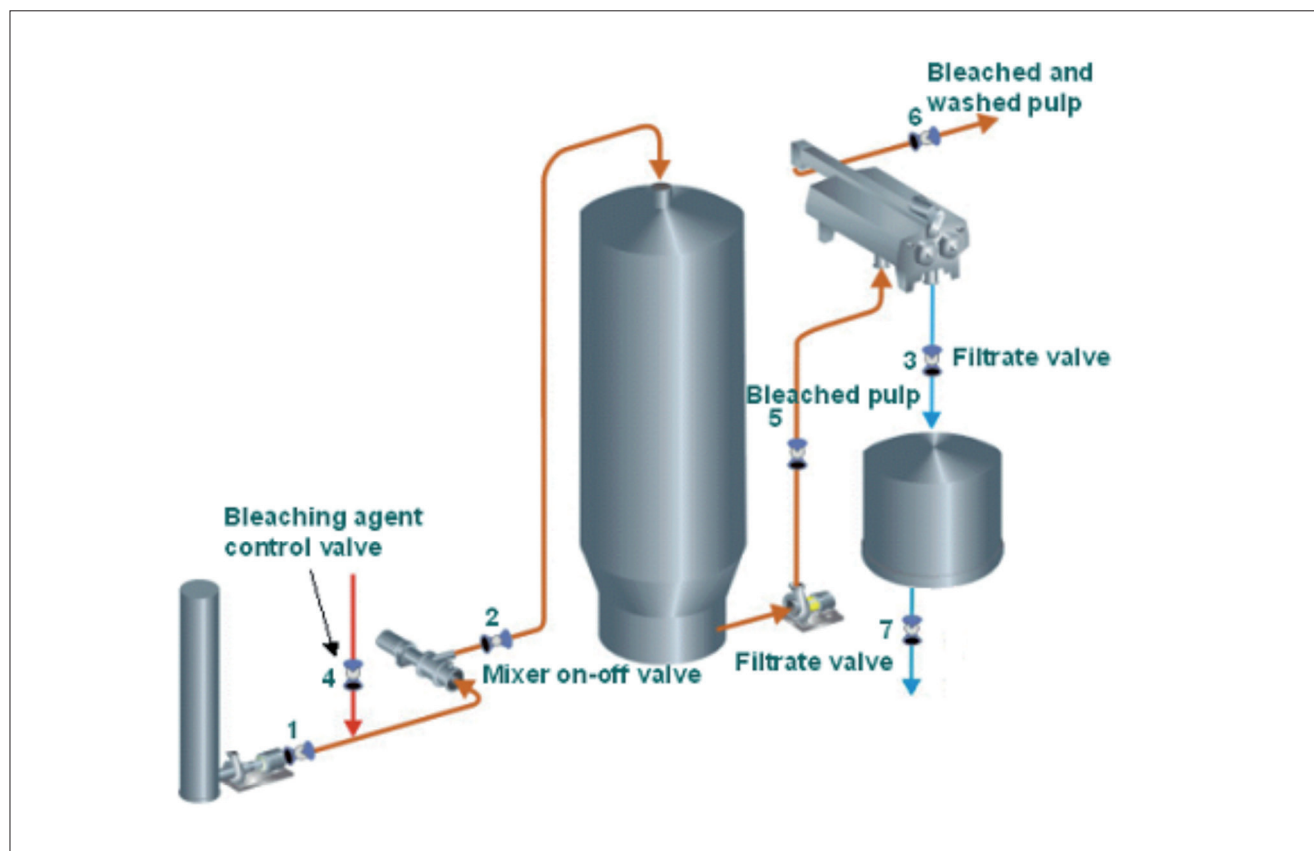


Fig. 2. Valves in hypochlorite bleaching.

Valves

The construction material of tanks, pipes and valves is acid proof steel or titanium, because of the corrosive NaOCl. Figure 2 shows typical valves in a hypochlorite bleaching stage.

Pulp flow is controlled by MC control segment valve. Agent is added to the process before mixer. Pulp and agent are mixed in the mixer as a homogenous compound. That compound is fed to a bleaching tower through mixer on-off valve.

Bleached chemical pulp is fed to the washing system where chemical left over and water soluble reaction products are removed. After pulp washing it is conducted to the next bleaching stage. Filtrate valves give out used chemicals to treatment. Depending on the process, valves 3, 5 and 6 are not always used.

Table 2 gives valve types and materials (example materials are in brackets). Pressure ratings are sized by pump sizes.

Table 2. Valve types and materials in hypochlorite bleaching.

Valve	Name	Type	Material	E.g.
1	MC control valve	Segment	CG8M (317 SS) or	R2 _S...CJJK or
			CK3MCuN	R2 _S...UUUT
2	Mixer on-off valve	Ball	Titanium or	M1_B...YY
			CK3MCuN or	M1_B...UC
			PTFE Lined	M1_B AP*
3	Filtrate valve	Segment or butterfly	Titanium	R1_A...TTTU
4	Bleaching agent control valve	Ball or Segment	Titanium or	R1_A...TTTUT
			CK3MCuN	M1_B...UC
5	Bleached pulp	Ball or segment	CM3MCuN (254 SMO)	RE_A...UUUUT
6	Bleached and washed pulp	Segment or butterfly	CF8M (316 SS)	RAA...AS
7	Filtrate valve	Segment or butterfly	Titanium	R1_A...TTTUT

* Teflon lined

MC control segment valve is made from CG8M or CK3MCuN, because it has to have a good corrosion resistance. Mixer on-off ball valve needs corrosion resistance even more because of added agent. Usually it is manufactured from titanium or CK3MCuN. Chemical agent filtrate valve 3 is titanium as well as the final filtrate valve 7.

Good corrosion resistance is needed also from bleaching agent control valve and between the bleaching and washing sequence. That is why strong titanium or CK3MCuN is used. Standard CF8M suits fine after the chemicals have been removed.

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