Difference Between Hot and Cold Lime-Soda Process

Cold lime-soda process	*Hot lime-soda process*
1. Calculated amount of lime and soda is mixed at room temperature (25–30°C).	1. This is done at elevated temperature (80–150°C).
2. It is a slow process.	2. It is a fast process.
3. The precipitate formed are finally divided and can't settle easily and hence filteration is not easy.	3. The precipitate formed are like sludge, settle down easily and hence filteration is easy.
4. Use of coagulant is must.	4. Coagulants are not required.
5. Softened water has residual hardness around 60 ppm.	5. Residual hardness is about 15–30 ppm.
6. Dissolved gases are not removed.	6. Dissolved gases like CO_2 are removed to some extent.
7. Low softening capacity.	7. High softening capacity.

Comparison between Ion-Exchange, zeolite & Lime-Soda Processes.

	Ion-Exchange	zeolite	Lime-Soda
(1)	Residual hardness is least (0-2) ppm.	low (0-10) ppm	High (30-60 ppm in cold L-S; 15-30 ppm in HOT L-S)
(2)	capital cost very high	high	low
(3)	operational cost high	low	high
(4)	~~Before~~ Raw water should not be turbid,	should not be turbid	no such limitation
(5)	BOTH acidic & alkaline water can be treated	water should not be acid	No such limitation
(6)	Fully Automatic, Equipment compact	fully Automatic Eq. compact	Automation not possible Eq. occupy more space.
(7)	No sludge formation	No sludge	Sludge formation takes place which is to be disposed.
(8)	Treated water is free from any types of ions.	contains more Na^+.	Lesser amount of Na-salts.