

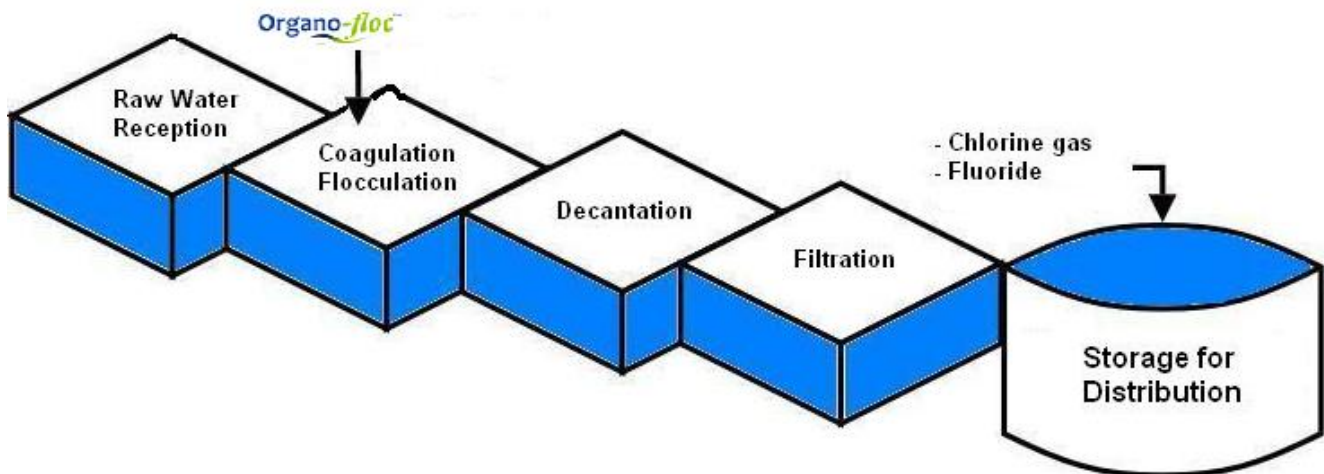
## CASE STUDY - WTP COAGULATION AND FLOCCULATION

### CHALLENGE/OPPORTUNITY

A water treatment plant Comusa, Novo Hamburgo located in the Rio Grande do Sul state at the southern-most region of Brazil with a capacity of 60,000 m<sup>3</sup>/day used to treat water for public supply and was seeking an alternative to aluminium based coagulation / flocculation. The source is from Sinos River which is heavily polluted and difficult to treat with inorganics coagulant / flocculant. Raw water turbidity range between 5 NTU to 500 NTU with normal range of 30 to 60 NTU. Suspended solids range from 50 ppm to 500 ppm with average 100 ppm. OrganoFloc CG dosed at 5 ppm to 15 ppm is effective and produced consistent results throughout.

Besides achieving this objective, it was also possible to refrain from use of alkalizing agent which reduces sludge generated. Alum salt form hydroxide colloids in contact with water and makes it more difficult to dewater sludge. OrganoFloc treated sludge is easier to dewater being more compact. OrganoFloc treated sludge is safe to dispose or recycle as fertiliser as it does not add heavy metal to sludge.

### APPLICATION FLOWCHAT



## Organo-floc CG

Coagulant / Flocculant

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#### RAW WATER CHARACTERISTICS

Flow	PH	Colour (Hazen)	Turbidity
60,000 m <sup>3</sup> /day	6.5	30 to 100	30 to 500 NTU

#### TREATMENT with ORGANOFLOC

5 to 15 ppm	pH	Colour (Hazen)	Turbidity
	6.5 to 6.68	0 to 2	0.24 to 0.41 NTU

#### BENEFITS DERIVING FROM THE APPLICATION OF Organo-floc CG

- Refrain from use of aluminium based coagulant / flocculant to comply with local legislation parameters in force;
- No need for alkalizing as OrganoFloc does not consume pH;
- Decantation efficiency increase enables WTP flow increase;
- Increase of filter operation time between retro washes;
- Treated water turbidity reduction;
- Treated water colour reduction;
- Generation of less sludge by about 30% and can be considered for recycling as fertilizer or safe to landfill;
- Savings in capital investment for aluminium contaminated sludge on-site treatment and saving in logistic cost for proper disposal of contaminated sludge;
- Environment and ground water safeguarded with no contaminated sludge;
- OrganoFloc is versatile and operates in wide range of 4.5 pH to 8.0 pH;
- OrganoFloc is able to treat wide range of turbidity consistently even during rainy season when >1000 NTU providing assurance of continuous water production with no slow down or shut down as compared to use of inorganic coagulant/flocculant. Need to adjust dose rate corresponding to NTU level accordingly and performance is responsive;
- Depending on local raw water OrganoFloc reduces manganese, iron, aluminium and ammonia residue in treated water and thereby reduce treatment downstream during chlorination;