Starting point formulation – Hypochlorous acid-based hydrogel utilizing 3.5 % PURABYK-R 5500

Formulation

Position	Component	Supplier	Function	Weight (g)
1	Ultra-pure deionized water		Solvent	16.00
2	Neuthox 500	Danish clean water	Hypochlorous acid with 500 ppm free available chlorine (FAC)	80.00
3	PURABYK-R 5500	BYK	Rheological additive	3.50
4	Ortho-phosphoric acid (21 % PA)		pH adjuster	0.50
Total				**100.00**

Instructions

Note: When handling HClO, contact with metal including stainless steel needs to be avoided, for stirring non-metal (PTFE or glas) stirrer are recommended.
All equipment (container, stirrer etc.) should be pre-rinsed with a HClO solution.

There are two routes for putting the formulation together, depending on the residual salt concentration in the active material.
If the HClO solution contains up to 2 % NaCl, PURABYK-R 5500 can be added directly as a powder:

- Add HClO and ultra-pure water to a mixing vessel and mix at moderate to high shear (3–5 m/s) for at least 3 min.
- Set the mixing high enough to produce a vortex (5–8 m/s); this will allow the clay powder to dissolve quickly in the water without the formation of clumps.
- Add the PURABYK-R 5500 in a continuous stream over 10 to 20 seconds, directly into the vortex of the HClO solution.
- Continue mixing for 20 min.
- Add the phosphoric acid to adjust the pH to 5.0–5.5.
  From an initial pH of 5.0–5.5, formulations will typically stabilize at pH ~ 6.5.

If the HClO solution contains more then 2 % NaCl, PURABYK-R 5500 must be pre-mixed with ultra-pure water:

- Add ultra-pure water to a mixing vessel and set the mixing high enough to produce a vortex (5–8 m/s); this will allow the clay powder to dissolve quickly in the water without the formation of clumps.
- Add the PURABYK-R 5500 in a continuous stream over 10 to 20 seconds, directly into the vortex of the ultra-pure water.
- Continue mixing for 20 min.
- Add than the HClO solution gradually to the clay slurry.
- In the end add the phosphoric acid to adjust the pH to 5.0–5.5.
  From an initial pH of 5.0–5.5, formulations will typically stabilize at pH ~ 6.5.

Characteristic data / specification

Data	Unit	Value
Free active chlorine	ppm	~ 400
Solid content	%	3.5
pH		Initial 5.0–5.5, after several days equilibration to 6.5

Further information / application

The formulation is designed to be used as it is.

The formulation is pumpable through a pump or squeeze bottle.
The viscosity will break, and the hydrogel will flow easily under shear stress.

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