



## Sepiogel TX in suspension fertilizers

### Introduction

**Sepiogel TX** is a low dust additive designed to provide high efficiency suspension properties. This product introduces some innovative differences with classic clays used in this field. **Sepiogel TX** is a self-dispersing additive that works being activated by the presence of small concentrations of cations, and particularly with  $\text{Ca}^{2+}$  and  $\text{K}^{+}$ , ions extensively present in fertilizer media.

### Experimental & Results

In order to show the gel structure activation by interaction with electrolytes, 6% Sepiogel suspensions were prepared in cation chloride solutions of different concentrations. In figure 1 it is showed the effect of activation of gel structure of **Sepiogel TX** using different electrolytes and concentrations.

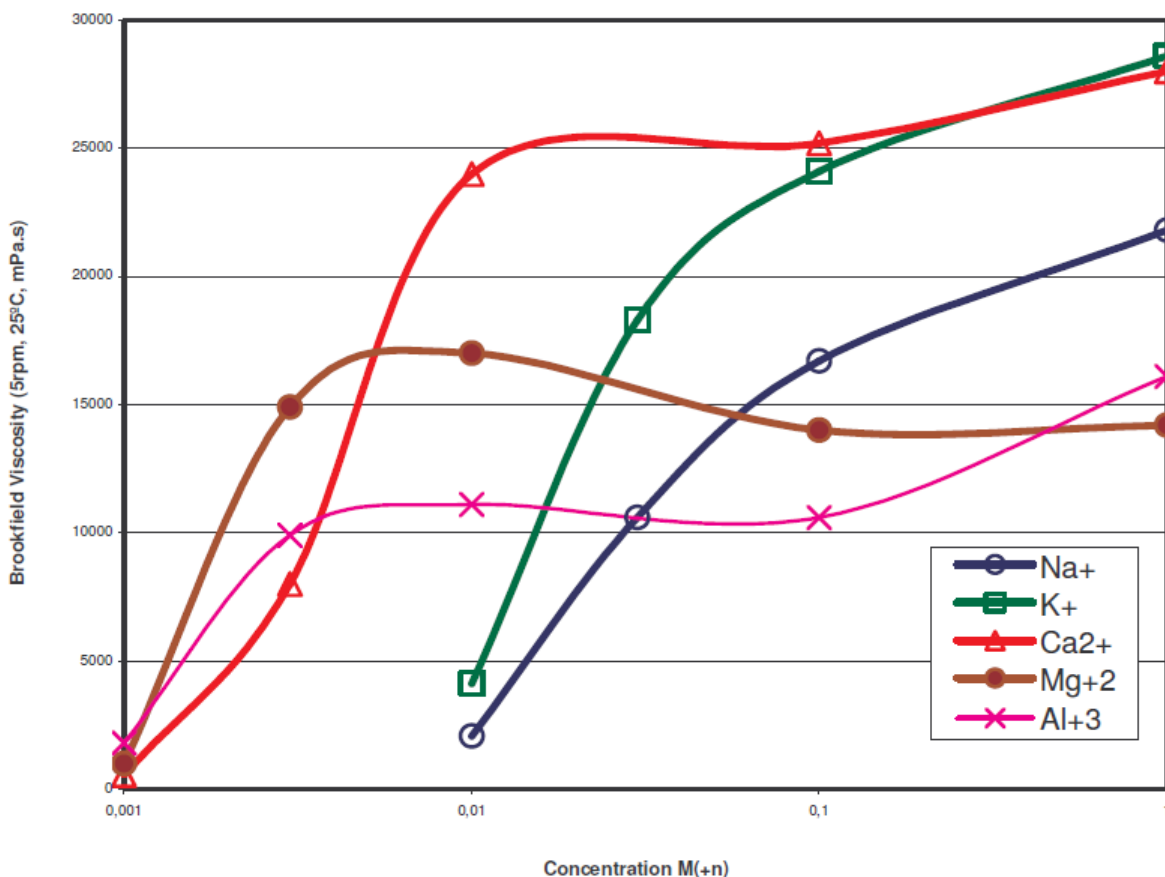


Fig. 1. Viscosity of Sepiogel TX with different electrolytes (6% solids suspensions in water - Shear rate 18 m/s)



**Sepiogel TX** has been tested in three different standard formulations of suspensions fertilizers at different concentrations to show stability after 3 days. Figures were compared with **Sepiogel TS**, our standard product for this application in the concentration normally used.

No pregel or predispersion was used in the process.

| N-P-K Formula | Clay Conc. (%)   | Brookfield V. 5 rpm<br>25 °C (cP) |        | Syneresis (%) |       |
|---------------|------------------|-----------------------------------|--------|---------------|-------|
|               |                  | 0 hr                              | 72 hr  | 0 hr          | 72 hr |
| 7-10-20       | Sepiogel TX 1.25 | 6.700                             | 13.300 | 0             | 0     |
|               | Sepiogel TS 3.00 | 21.800                            | 13.300 | 0             | 0     |
| 10-10-18      | Sepiogel TX 1.25 | 6.400                             | 12.700 | 0             | 1     |
|               | Sepiogel TS 2.50 | 13.500                            | 18.200 | 0             | 1     |
| 18-10-12      | Sepiogel TX 1.25 | 5.700                             | 5.300  | 0             | 1     |
|               | Sepiogel TS 1.50 | 4.700                             | 4.300  | 2             | 2     |

## Conclusions

- Small levels of cations are enough for promoting the construction of a stable gel structure. Particularly potassium and calcium are very effective as activators.
- **SEPIOGEL TX** showed very good stability in the different NPK formulation tests
- In comparison with our standard additive **Sepiogel TS**, **Sepiogel TX** showed high stability at a half of the concentration required normally. In two of the three formulations, this stability was obtained with much lower viscosity what can improve the handling of the suspension generated