



CHRYSAI
Africa

'Maintaining the beauty'

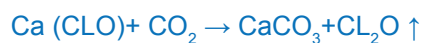
Post harvest treatments and management remains a very important aspect of Floriculture production in East Africa: In order for expansion into new markets and to maintain the confidence in our flowers the need for increased focus on Post harvest must not be underestimated.

However with the increasing need to balance cost-benefits at the farms, Chrysal International has developed a very effective and economic solution for the post harvest solution in the field and at reception: Chrysal Inicial. Firstly developed in Latin America and now recently introduced in East Africa as well!

Chrysal Inicial is a product consisting of a mixture of our long lasting chlorine and aluminium sulphate. It is a powder formulation, dosed at 0,3 gram per liter and has, depending on the climate, hygiene, initial water quality at the farm, an active life of 1 - 4 days. Why is this product more effective than for example the more common mixture of Calcium Hypochlorite and citric acid?

Calcium Hypochlorite Industrial (Powder)

Chlorine can be defined as a wide acting biocide that has uses across many industries world wide and is argued to be the most widespread disinfectant globally: the molecule is made up of 'Calcium Hypochlorite industrial derivative' this is one of the examples:

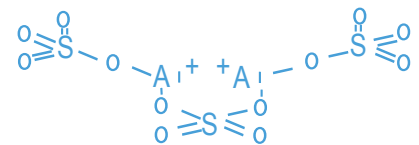


Typically this industrial derivative is not highly water soluble and prefers soft to medium hard water the reactant molecules include Carbon Dioxide and Calcium Carbonate resulting in the gaseous release of Dichlorine Monoxide. Its uses are widespread including disinfection of drinking water, sanitizing of swimming pools household bleaching powders and in the sugar industry when bleaching sugar cane. It should be stored ideally in a cool dry place.

The Chlorine in Chrysal Inicial is a slow release chlorine, it is more efficient than other types of chlorine. The mechanism of action is the release of Chlorine in low concentrations by a constant rate.

Aluminium Sulphate:

The direct action of this molecule is flocculation and acidification in water:



This is a chemical compound with the formula $\text{Al}_2(\text{SO}_4)_3$. It is soluble in water and is mainly used as a flocculating agent in the purification of drinking water and waste water treatment plants, the molecules are sometimes referred to as a type of alum. It causes impurities to coagulate which are removed as the particulate settles to the bottom of the container or more easily filtered. This process is called coagulation or flocculation. Flocculants, or flocculating agents (also known as flocking agents), are chemicals that promote flocculation by causing colloids and other suspended particles in liquids to aggregate, forming a floc. Flocculants are used in water treatment processes to improve the sedimentation or filterability of small particles. For example to aid removal of microscopic particles which would otherwise cause the water to be turbid (cloudy) and which would be difficult or impossible to remove by filtration alone. $\text{Al}_2(\text{SO}_4)_3$ is also an affective acidifier and thus lowers the pH of the post harvest solution to, depending of the water type used, between 4.5 and 6.0

POST HARVEST TREATMENTS & VASE LIFE

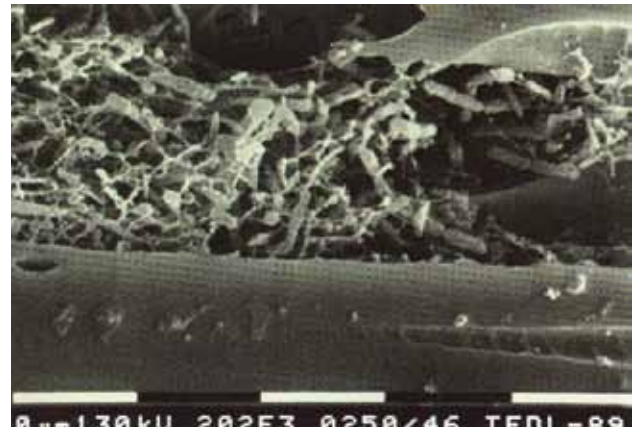
The first drink after harvesting is the most important factor in hydrating your flowers and maintaining vase life or so called maintaining initial quality: we have seen through our recent work effective combating of secondary problems associated with vase life due to improved procedures. Handling, hygiene, transportation time to the packing hall,

water type, presence or absence of Botrytis, climate during storage etc all play a vital role in maintaining the initial quality of the flower. The initial quality of the flower and final longevity of the flowers however at the consumer level varies greatly among varieties, microclimatic environments in which growing occurs and crop nutritional

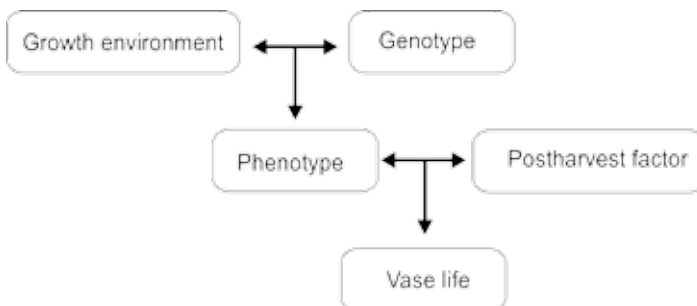
regime. In short it also depends on cultivar and growing conditions. Bacteria are enemy number one in post harvest solutions, they will contaminate floral solutions, ultimately clogging stem ends and inhibiting water uptake, as identified in the below pictures. Reducing vase life to a minimum.



Sterilized Vascular system



Polluted Vascular system



The diagrammatic solution above illustrates direct factors affecting vase life



(6Kg RTU 20,000lts) (20 Kg RTU 66.666lts)



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