



High-rise building



Sandton  
South Africa



2019



Client: Seventy Five on Maude (Pty) Ltd  
Principal Agent: Legacy Development  
Management  
Main Contractor: Aveng Grinaker LTA  
Specialist Sub-contractors: AfriSam SA (Pty)  
Ltd & CHRYSO SA (Pty) Ltd

## The Leonardo

### Project details

Amongst the key challenges of the project was the vertical concrete pumping height of 200 metres. To overcome this challenge and to avoid any blockages in a pipeline over 200 metres long, a super-plasticised concrete mix with a slump of 180 mm was used.

For the conventionally placed concrete and the concrete pumped to conventional pumping heights of between 30 to 50 metres, CHRYSO Southern Africa supplied AfriSam with approximately 65 000 litres of CHRYSO® Omega 140AFR, a hybrid plasticiser/super-plasticiser, specially formulated to perform optimally with concrete mix components used by AfriSam.

The addition of 19 000 litres of CHRYSO® Optima 100 super-plasticizer, allowed for concrete pumping pressures to be reduced to acceptable levels, at heights greater than conventional pumping heights; it also ensured a five-hour workability of the concrete mix, to allow for traffic delays when delivering to site.

The normal aggregate size of 22 mm for structural concrete was reduced to 13.5 mm and 9.5 mm as a further precaution to counteract friction stresses in the placing pipes and between the concrete-formwork interface. The result was a reduction in heat generation during placing and ensured that the aggregates had consistent paste coating from discharge to placing, with no segregation at this extreme placing height.



**CHRYSO® Optima 100**  
**CHRYSO® Omega 140AFR**