

High-Fluidity Concrete with Low Cement Content “Neuro-Crete Neo[®]”

Kuniaki SAKURAI ▶ Chief Researcher, Construction System and Materials Department, Technical Research Institute Technology Division, OBAYASHI CORPORATION

Japan is facing a serious shortage of construction workers. In order to improve the productivity of tunnel lining, the use of high-fluidity concrete which requires no compaction is effective.

However, in conventional high-fluidity concrete, separation of materials needs to be prevented by drastic increase in the unit cement quantity which induces increased material cost and risk of thermal crack.

Therefore, we developed Neuro-Crete Neo[®], the high-fluidity concrete with low cement content. Using a newly developed special thickening agent, it keeps high fluidity and self-compacting property while the cement quantity is equivalent to the concrete used for general tunnel lining. The features of Neuro-Crete Neo[®] are as follows:

- (1) The high-fluidity and self-compacting property are ensured, while the cement quantity remains equivalent to the conventional lining concrete.
- (2) The amount of the special thickening agent used is as small as about 60 g/m^3 , and it can be put into the mixer simultaneously with other materials during the concrete manufacturing with no special equipment or facility needed.
- (3) The quality after curing is equivalent to the conventional lining concrete of equal water-cement ratio.
- (4) High-quality tunnel lining is possible without compaction.



Photo 1 Special thickening agent (left) and Neuro-Crete Neo[®]

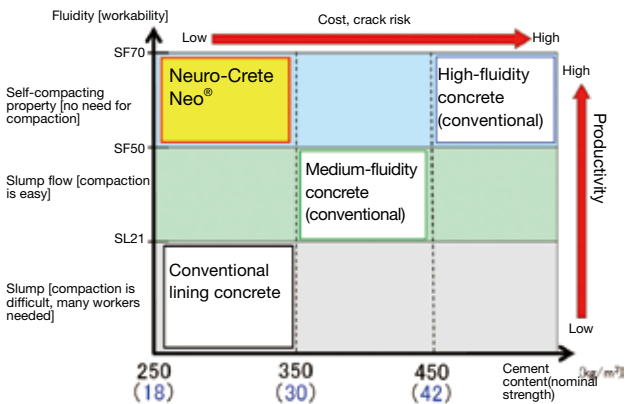


Fig.1 Position of Neuro-Crete Neo[®]