

Name of the technology:		Special Concrete Additive, Silica White
Developer's name:		Silica Japan, Ltd.
NETIS registration number:		<input checked="" type="checkbox"/> Registered : registration number【HK-060017 】 <input type="checkbox"/> Not registered
Local management bureau that handles the application:		Hokkaido Development Bureau
Classifications:		[Level 1: concrete work], [Level 2: ], [Level 3: ], [Level 4: ]
Types of engineering work to which this technology is applicable:		construction, harbour, bridge, tunnel, and general concrete structure
Conventional technology that is compared with this technology	Name of the technology	air entraining and high-range water reducing agent + water-repellent
	The reason why the technology above was employed:	Generally, in the case of exposed concrete, the air entraining and high-range water reducing agent is used to control as much water as possible. However, with this technology, we cannot get enough waterproofing. Therefore, it is necessary to finish with water-repellent in order to prevent water and salinity from infiltrating. Furthermore, although water-repellent will flake off in 3 to 10 years, Silica White can maintain the performance almost permanently.
Others		

Evaluation item			Sections that are filled by an applicant			Remarks
1	2	3	Cost required with the conventional technology	Cost required with the technology that is applied at this time	Comparison result with the conventional technology	
Economical efficiency	<b>Initial cost</b>	Construction unit price (wall thickness: 20cm, wall area: 5m <sup>2</sup> )	5m <sup>2</sup> ×2,840 yen/1m <sup>2</sup>	5m <sup>2</sup> ×1,200 yen/1m <sup>2</sup>	Improved by 57.7%	
	Running cost	—	—	—	—	
	Others	Cutback in days required for the work	7 days	1 day	Improved by 85.71%	
	<b>Total cost</b>	<b>Total</b>		14,200 yen	6,000 yen	—

Evaluation item			Sections that are filled by an applicant			Remarks
1	2	3	①Present standard, etc.	②Verified values, etc. concerning the applied technology	③Comparison result with the conventional technology	
Safety ※Excluding the safety specified in Industrial Safety and Health Law	<b>Structure</b>	Safety of material	—	Heavy metal: 50μg/g or less Arosevic: 4μg/g or less Lead: 10μg/g or less	Nothing particular	
	<b>Construction stage</b> ※In the case of temporary work, safety is not considered in this sheet	—	—	It is safe because inorganic materials are used.	Harmless	
Durability	<b>Physicality</b>	Compressive strength	50N/mm <sup>2</sup>	67N/mm <sup>2</sup>	Improved by 34%	
	<b>Efficiency</b>	Frost-resistant (mass change)	—	97.8%-100% (mean value) =2.2%	Improved	
		(deterioration rate)	—	ED 96.7%	Improved	
		Permeability test	—	Outflow of water is not found.	Improved	
		Abrasion resistance test	—	Abrasion rate: 555.4mm <sup>3</sup> /cm <sup>3</sup>	Having high abrasion resistance	
		Prevention of efflorescence	—	Visual check	Improved	
Waterproofing property of building frame	—	Outflow of water is not found.	Improved			
Quality and shape of finished product	<b>Material</b>	Quality of material	—	Inorganic fine particles	Non-crystal	
	<b>Construction</b>	—	—	—	—	
	<b>Finished product</b>	—	—	Durability will be improved because the gap is filled by fixing hydroxide lime and bleeding, etc.	More than equal	
Construction	<b>Streamlining</b>	Bleeding	—	Bleeding rate: air entraining and high-range water reducing agent : 12.0ml, Silica White: 9.5ml	Decrease in bleeding: about 20%	
	<b>Condition of the construction site</b>	—	—	Adding/mixing in a mixer on site or at a freshly mixed concrete plant	Improved	
	<b>Applicable range</b>	—	—	General concrete structure	Improved	
	<b>Weather conditions</b>	—	—	Temperature: cannot be done at 5 degrees centigrade or less	Equal	
	<b>Construction management</b>	—	—	Cannot be done when raining.	Equal	
	<b>Difficulty</b>	—	—	N/A	Improved	
Impact on surrounding environment	<b>Social environment</b>	—	—	—	—	
	<b>Workers' environment</b>	—	—	Nothing particular	Improved	

Others	Presence of original standard etc.	Technological guideline, design standard, etc.	We have own standards on how to use Silica White [Appendix 8]
		Quantity survey standard	None
		Construction management standard	None
	Others		