Ordinary Portland Cement (OPC) is the most common type of cement that is widely used around the world. The most common purpose of OPC is the production of concrete. Concrete is a composite fabric consisting of aggregate gravel, sand, cement and water. As a constructing material, concrete can be cast in almost any desired form, and once it is hard, it can be a structural element. Concrete is employed in the construction of structural elements like columns, slab, beams, and structures like roads and dams. OPC is also used in fillings for plasters and screeds. OPC is manufactured by burning calcerous materials like limestone and siliceous materials at 1400 degree Celsius and thereafter grinding it with gypsum. It is made up in the form of different grades, with the most common grade in Nepal being Grade-53 and Grade- 43.

Advantages of Sarbottam (OPC)

- High fineness than any other cement in Nepal.
- Free form Alkalis and Chlorides.
- About 20% cement reduction due to 20% high bond strength.
- Most demanded cement in large construction projects like hydropower, road, building, irrigation, transmission line, tunnel etc.
- Strength up to M40 can be easily achieved without using admixture.
- Fast setting in nature, resulting in construction time and cost saving.
- 100% manufactured using clinker extracted from own limestone mine.
- NS 572, ISO 9001 and ISO 14001 certified.

ISO 9001:2015 Certified Company

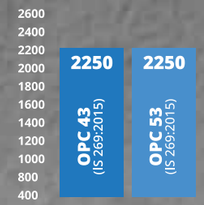
ISO 14001:2015 Certified Company

PHYSICAL REQUIREMENTS FOR OPC

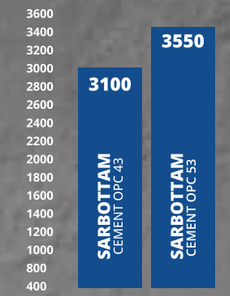
Specific Surface Area (Blaine) cm^2/g

Higher the surface area, higher the strength

NS REQUIREMENTS (Minimum)



IS REQUIREMENTS (Minimum)



Sarbottam Cement OPC (Minimum)

Setting Time

Greater the value of initial setting time, more convinient it will be for mixing, transportation and placement of concrete and lesser the value of final setting time, quicker will be the hardening of concrete

Initial

NS REQUIREMENTS (Minimum)

IS REQUIREMENTS (Minimum)

SARBOTTAM CEMENT OPC

Final

NS REQUIREMENTS (Maximum)

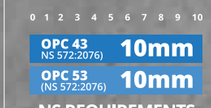
IS REQUIREMENTS (Maximum)

SARBOTTAM CEMENT OPC

Soundness Test

Lesser the soundness value, more will be the durability of concrete

Le Chatelier Method (in mm)

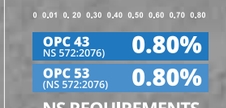


NS REQUIREMENTS (Maximum)

IS REQUIREMENTS (Maximum)

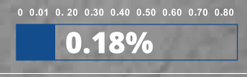
SARBOTTAM CEMENT OPC

Autoclave Method (in %)



NS REQUIREMENTS (Maximum)

IS REQUIREMENTS (Maximum)



SARBOTTAM CEMENT OPC

CHEMICAL REQUIREMENTS FOR OPC

SN	CHARACTERISTICS	NS REQUIREMENTS		IS REQUIREMENTS		SARBOTTAM CEMENT OPC
		OPC 43 (NS 572:2076)	OPC 53 (NS 572:2076)	OPC 43 (IS 269:2015)	OPC 53 (IS 269:2015)	
1	Lime Saturation Factor when calculated by formula: $(CaO-0.7SO_3)/(2.8SiO_2+1.2Al_2O_3+0.65Fe_2O_3)$	0.66-1.02	0.80-1.02	0.66-1.02	0.80-1.02	0.91
2	Ratio of % of Alumina to % of Iron Oxide (Minimum)	0.66	0.66	0.66	0.66	1.35
3	Insoluble Residue, % by Mass, (Maximum)	2	2	5	5	1.72
4	Magnesia,% by Mass, (Maximum)	5	5	6	6	4.1
5	Total Sulpher Content as Sulphuric Anhydride (SO_3), % by Mass, (Maximum)					
	a) If content of C_3A <5%	2.5	2.5	3.5	3.5	2.27
	b) If content of C_3A >5%	3	3	3.5	3.5	
	where $C_3A=2.65(AL_2O_3)-1.69(Fe_2O_3)$, Al_2O_3=% of Mass of Al_2O_3, Fe_2O_3=% of Mass of Fe_2O_3					
6	Loss on Ignition, % by Mass (Maximum)	4	4	5	4	1.88

COMPRESSIVE STRENGTH (MPA)	NS REQUIREMENTS		IS REQUIREMENTS		SARBOTTAM CEMENT	
	OPC 43 (NS 572:2076)	OPC 53 (NS 572:2076)	OPC 43 (IS 269:2015)	OPC 53 (IS 269:2015)	OPC 43	OPC 53
a) By keeping 1 day in Air& 2 days in Water (3 days)	23 (Minimum)	27 (Minimum)	23 (Minimum)	27 (Minimum)	32	36
b) By keeping 1 day in Air& 6 days in Water (7 days)	33 (Minimum)	37 (Minimum)	33 (Minimum)	37 (Minimum)	38	47
c) By keeping 1 day in Air& 27 days in Water (28 days)	43 (Min)-58 (Max)	53 (Minimum)	43 (Min)-58 (Max)	53 (Minimum)	52	58