

April 1, 2022

**ORCA WASHED CONCRETE SAND**

The Orca concrete aggregates are produced at the Orca Quarry, Port McNeill, B.C., in a modern and efficient washing and processing plant opened in March 2007 and distributed via ocean-going ships or barges.

The California Department of Transportation has established that aggregates from this source are innocuous with respect to Alkali Silica Reactivity and has approved them for use in reduced mineral admixture concrete.

Caltrans # 19-Can-02

<https://mets.dot.ca.gov/aml/InnocuousAggList.php>

Independent laboratory concrete trial mixes using Orca washed concrete sand and Orca 1" x #4 gravel produced results designated "Low Shrinkage" in accordance with test method ASTM C157 (Modified).

**GRADATION – PERCENTAGE PASSING**

Sieve Size	Orca Sand (Typical Values)	Specifications			
		CALTRANS Per: 90-1.02C (4)(c) 2018		ASTM C33-03	
9.5 mm (3/8")	100	100		100	
4.75 mm (#4)	97	95 - 100		95 - 100	
2.36 mm (#8)	83	65 - 95		80 - 100	
1.18 mm (#16) "A"	71	X = 68	58 - 78	X = ± 10	50 - 85
600 µm (#30) "B"	55	X = 46	37 - 55	X = ± 9	25 - 60
300 µm (#50) "C"	28	X = 24	18 - 30	X = ± 6	5 - 30
150 µm (#100)	9	2 - 12		0 - 10	
75 µm (#200)	2	0 - 8		0 - 3	
A - B	16	10 - 40			
B - C	27	10 - 40			
Fineness Modulus	2.65 - 2.85			2.30 - 3.10	

**TYPICAL PROPERTIES**

Testing		Specifications			
Test Name	Orca Value	CTM	ASTM	Caltrans	ASTM
Specific Gravity, bulk SSD	2.778	207			
Absorption	0.9		C128		
Dry Rodded Unit Weight, pcf	121.3	212	C29		
Sand Equivalent	85	217	D2419	75 Min.	
Durability	77	229	D3744	60 Min.	
Soundness	0.5%		C88		10% Max
Soundness	1.2%	214			10% Max
Materials Finer Than No. 200	2.0%		C117		3% Max
Lightweight Pieces - Coal & Lignite	0.1%		C123		0.5% Max
Clay Lumps	0.3%		C142		3.0% Max
Organic Impurities	Satisfactory		C40		
Alkali Silica Reactivity	Innocuous		C1567		0.10% Max
Alkali Silica Reactivity	Innocuous		C1293		0.04% Max
Alkali Silica Reactivity	Innocuous		C1260		0.10% Max

Special Notes\*

1) **This material carries an Environmental Product Declaration**

This declaration has been prepared in accordance with ISO 14025, ISO 21930, and ASTM International's EPD program operator rules.



Index List (<https://www.astm.org/CERTIFICATION/EpdAndPCRs.html>)

Specific EPD ([https://www.astm.org/CERTIFICATION/DOCS/344.EPD\\_Polaris\\_Materials\\_final.pdf](https://www.astm.org/CERTIFICATION/DOCS/344.EPD_Polaris_Materials_final.pdf))

2) **This product is recognized by NSF International**

This product complies with NSF/ANSI 61, 372 and all other applicable requirements



3) All testing has been performed at accredited 3<sup>rd</sup> party laboratories in accordance with applicable ASTM and CalTrans methods.



A handwritten signature in black ink, appearing to read 'S. Dryden'.

Scott Dryden

President & CEO  
Orca Sand & Gravel LP.