TR-7011 (8-19)

pennsylvania
DEPARTMENT OF TRANSPORTATION
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CEMENT MILL TEST RESULTS

This form is for use by a cement/mill in reporting test results to the Pennsylvania Department of Transportation, Bureau of Project Delivery, Construction and Materials Division, 81 Lab Lane, Harrisburg, Pa, 17110.
Complete fillable fields, print and sign before submitting.

Mill 1141
Mill Location Kosmos Cement
Silo/Lot Number 114102012022
Date(s) Produced (Ground) 02/01/2022
Cement Type I&II HA
Other Cemex Lot # 1729-A-22
Quantity and Unit 1700
Mill Test Date 02/20/2022

List below only those properties required by the Specification for type of cement indicated

CHEMICAL RESULTS

Silica (SiO_2)	18.6	%
Alumina (Al_2O_3)	4.4	%
Iron Oxide (Fe_2O_3)	3.1	%
Lime (CaO)	61.4	%
Magnesia (MgO)	3.6	%
Sulfur Trioxide (SO_3)	3.9	%
Loss on Ignition	3.0	%
Insoluble Residue	0.19	%
Alkalies ($Na_2O + 0.658\ K_2O$)	0.59	%
Chloride	0.01	%
Carbon Dioxide (CO_2)	2.0	%
Potential phase compositions		
Tricalcium Silicate (C_3S)	63	%
Dicalcium Silicate (C_2S)	5.8	%
Tricalcium Aluminate (C_3A)	6.4	%
Tetracalcium Aluminoferrite (C_4AF)	9.6	%
$C_4AF + 2(C_3A)$	22.4	%
$C_3S + 4.75\ C_3A$	93.4	%

LIMESTONE
Processing Addition Data

Amount	4.5	%
Silica (SiO_2)	5.9	%
Alumina (Al_2O_3)	0.45	%
Iron Oxide (Fe_2O_3)	0.36	%
$CaCO_3$ in Limestone	85.1	%
Lime (CaO)	47.3	%
Sulfur Trioxide (SO_3)	0.14	%
Carbon Dioxide (CO_2)		%
Loss on Ignition	43.8	%

PHYSICAL RESULTS

Air Content (AASHTO T 137)	7.8	%
Fineness (Blaine)	406	m²/kg
Soundness-Autoclave Expansion	0.033	%
Compressive Strength:		
1 Day		psi (MPa)
3 Day	4005	psi (MPa)
7 Day	5217	psi (MPa)
28 Day	6455	psi (MPa)
Normal Consistency (AASHTO T 129)	26.2	%
Time of Setting by Vicat		
Initial Set	122	min.
Final Set	242	min.
False Set	70	%
ASTM C1038 Mortar Bars	0.008	%
Heat of Hydration (7 day)		cal/g (kJ/kg)
Date Performed		

BASE CEMENT PHASE COMPOSITION

Tricalcium Silicate (C_3S)	66	%
Dicalcium Silicate (C_2S)	6.1	%
Tricalcium Aluminate (C_3A)	6.7	%
Tetracalcium Aluminoferrite (C_4AF)	10.1	%