NATIONAL READY MIXED CONCRETE LABORATORY

1851 East Huntington Drive, Duarte, CA 91010
Laboratory Phone: (626) 358-9690 Fax (626) 359-8971

PROJECT INFORMATION

1"/4000 psi/Pump-Place

Customer: DPR Construction, Inc. **Concrete Mix No.:** **S63915**
Project: **Date:**
Address: **Use:**
Concrete Supplier: National Ready Mix
Design Compressive Strength: 4000 psi @ 28 days **Plant:** Irwindale
W/C + P Ratio: 0.49 5.5 gal/sack **Slump Range:** 4.00 in.
Equivalent Cement Factor: 6.30 sacks/CY **General Contractor:**

CONCRETE MIX PROPORTIONS

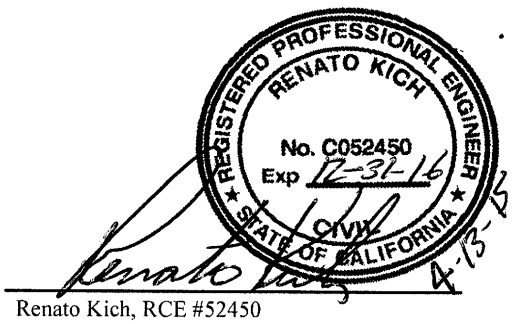
Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

Material		Source	Batch Wts (lb)	Abs. Vol. (cu.ft.)		Spec Grav.
Cement Type II/V		ASTM C150	503	2.56		3.15
Flyash Type F	15 %	ASTM C618	89	0.62		2.30
Water	35.0 gal	Water	291.6	4.68		1.00
No. 3 Agg.	45 %	United Rk, Irwindale	1405	8.49		2.65
No. 4 Agg.	10 %	United Rk, Irwindale	312	1.89		2.65
Concrete Sand	45 %	United Rk, Irwindale	1405	8.49		2.65
C494 Type A WR	4.0 oz/cwt C+P	Eucon NW	23.7 oz/cy			
Air Content	1.0 %			0.27		
Plastic Unit Wt:	148.4 pcf	**Material Totals:**	4005.9 lbs.	27.00	cu.ft.	

PROPOSED AGGREGATE GRADATIONS

	1 1/2 in. (37.5 mm)	1 in. (25 mm)	3/4 in. (19 mm)	1/2 in. (12.5 mm)	3/8 in. (9.5 mm)	No. 4 (4.75 mm)	No. 8 (2.36 mm)	No. 16 (1.18 mm)	No. 30 (0.6 mm)	No. 50 (0.3 mm)	No. 100 (0.15 mm)	No. 200 (0.075 mm)	FM
No. 3 Agg.	100	98	69	38	13	4	0	0	0	0	0	0	7.14
No. 4 Agg.				100	90	16	2	0	0	0	0	0	5.92
Concrete Sand					100	99	82	64	43	21	7	2	2.84
Comb. Grad.	100	99	86	72	60	48	37	29	19	9	3	1	5.08

Mix Notes:



Renato Kich, RCE #52450

To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Submittal No.: 22618 Report Name: NATCEM_B_Kich Units: US

NATIONAL READY MIXED CONCRETE LABORATORY

1851 East Huntington Drive, Duarte, CA 91010
Laboratory Phone: (626) 358-9690 Fax (626) 359-8971

PROJECT INFORMATION

1"/3500 psi/Pump-Place

Customer: DPR Construction, Inc. **Concrete Mix No.:** **S58003**
Project: **Date:**
Address: **Use:**
Concrete Supplier: National Ready Mix
Design Compressive Strength: 3500 psi @ 28 days **Plant:** Irwindale
W/C + P Ratio: 0.57 6.4 gal/sack **Slump Range:** 6.00 in.
Equivalent Cement Factor: 5.80 sacks/CY **General Contractor:**

CONCRETE MIX PROPORTIONS

Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

Material		Source	Batch Wts (lb)	Abs. Vol. (cu.ft.)	Spec Grav.
Cement Type II/V		ASTM C150	463	2.36	3.15
Flyash Type F	15 %	ASTM C618	82	0.57	2.30
Water	37.0 gal	Water	308.2	4.95	1.00
No. 3 Agg.	45 %	United Rk, Irwindale	1404	8.49	2.65
No. 4 Agg.	10 %	United Rk, Irwindale	312	1.89	2.65
Concrete Sand	45 %	United Rk, Irwindale	1404	8.49	2.65
C494 Type A WR	3.0 oz/cwt C+P	Eucon NW	16.4 oz/cy		
Air Content	1.0 %			0.27	
Plastic Unit Wt:	147.2 pcf	**Material Totals:**	3973.1 lbs.	27.00	cu.ft.

PROPOSED AGGREGATE GRADATIONS

	1 1/2 in. (37.5 mm)	1 in. (25 mm)	3/4 in. (19 mm)	1/2 in. (12.5 mm)	3/8 in. (9.5 mm)	No. 4 (4.75 mm)	No. 8 (2.36 mm)	No. 16 (1.18 mm)	No. 30 (0.6 mm)	No. 50 (0.3 mm)	No. 100 (0.15 mm)	No. 200 (0.075 mm)	FM
No. 3 Agg.	100	98	69	38	13	4	0	0	0	0	0	0	7.14
No. 4 Agg.				100	90	16	2	0	0	0	0	0	5.92
Concrete Sand					100	99	82	64	43	21	7	2	2.84
Comb. Grad.	100	99	86	72	60	48	37	29	19	9	3	1	5.08

Mix Notes:

REGISTERED PROFESSIONAL ENGINEER
RENATO KICH
No. C052450
Exp 12-31-16
CIVIL
STATE OF CALIFORNIA
4-13-15

Renato Kich, RCE #52450

National Ready Mixed Concrete is a supplier of materials only. National does not engage in engineering, laboratory services, architecture, or general contracting. National does not assume any responsibility for design, engineering, selection of mixes for specific use, required quantities, or placement practices of the purchaser.

To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Submittal No.: 22618 Report Name: NATCEM_B_Kich Units: US

National Ready Mixed Concrete Company

1851 East Huntington Drive, Duarte, CA
Telephone : (626) 358-9690, fax : (626) 358-6702

Project Information

Mix No. :	S60100	**Description :**	6SK SAND SLURRY
Client :	DPR Construction, Inc	**Submittal No :**	28281
Project :		**Date :**	
Address :		**Usage :**	
Compressive Strength :	psi at 28 Days		
w/cm Ratio :	0.74	8.34 Gal/Sack	**Plant :** Sun Valley - Van Nuys
Equiv.Cem.Factor :	6.00 Sacks/CY		**Slump :** 8.00 ± 1.50in

Concrete Mix Proportions

Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

	Materials	Source	Quantity	Spec. Grav.	(ft³) Volume
	CEMENTII/V - Type II/V	National Cement	564 lb	3.15	2.87
50.0 Gal	Water		417.3 lb	1.00	6.68
100 %	W/C SAND	Vulcan, Sun Valley	2819 lb	2.65	17.04
Non Air Entrained	Air				0.40
140.8 lb/ft³	Plastic Unit Weight	Total	3800 lb		27.0 ft³

Proposed Aggregate Gradations

	2 "	1" 1/2	1"	3/4"	1/2"	3/8"	# 4	# 8	# 16	# 30	# 50	# 100	# 200	FM
W/C SAND	100	100	100	100	100	100	98	80	62	38	18	7	3	2.97
Combined Gradings	100	100	100	100	100	100	98	80	62	38	18	7	3	2.97

Optional Products :

Remarks :

To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Renato Kich, RCE #C052450

National Ready Mixed Concrete Company

1851 East Huntington Drive, Duarte, CA
Telephone : (626) 358-9690, fax : (626) 358-6702

Project Information

Mix No. :	S20100	**Description :**	2 SK SAND SLURRY
Client :	DPR Construction, Inc	**Submittal No :**	28267
Project :		**Date :**	
Address :		**Usage :**	
Compressive Strength :	psi at 28 Days		
w/cm Ratio :	2.66	30.05 Gal/Sack	**Plant :** Sun Valley - Van Nuys
Equiv.Cem.Factor :	2.00 Sacks/CY		**Slump :** 4.00 ± 1.00in

Concrete Mix Proportions

Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

	Materials	Source	Quantity	Spec. Grav.	(ft³) Volume
	CEMENTII/V - Type II/V	National Cement	188 lb	3.15	0.96
60.0 Gal	Water		500.7 lb	1.00	8.02
100 %	W/C SAND	Vulcan, Sun Valley	2915 lb	2.65	17.62
Non Air Entrained	Air				0.41
133.4 lb/ft³	Plastic Unit Weight	Total	3604 lb		27.0 ft³

Proposed Aggregate Gradations

	2 "	1" 1/2	1"	3/4"	1/2"	3/8"	# 4	# 8	# 16	# 30	# 50	# 100	# 200	FM
W/C SAND	100	100	100	100	100	100	98	80	62	38	18	7	3	2.97
Combined Gradings	100	100	100	100	100	100	98	80	62	38	18	7	3	2.97

Optional Products :

To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Renato Kich, RCE #C052450

National Ready Mixed Concrete Company

1851 East Huntington Drive, Duarte, CA
Telephone : (626) 358-9690, fax : (626) 358-6702

Project Information

Mix No. :	S69144	**Description :**	1 4000PSI PP 0.45 WCR
Client :	DPR Construction, Inc	**Submittal No :**	28267
Project :		**Date :**	
Address :		**Usage :**	
Compressive Strength :	4 000 psi at 28 Days		
w/cm Ratio :	0.45 5.08 Gal/Sack	**Plant :**	Sun Valley - Van Nuys
Equiv.Cem.Factor :	6.90 Sacks/CY	**Slump :**	4.00 ± 1.00in

Concrete Mix Proportions

Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

	Materials	Source	Quantity	Spec. Grav.	(ft³) Volume
	CEMENTII/V - Type II/V	National Cement	649 lb	3.15	3.30
35.0 Gal	Water		292.1 lb	1.00	4.68
45 %	1"x #4	Vulcan, Sun Valley	1396 lb	2.65	8.44
10 %	3/8"x #16	Vulcan, Sun Valley	310 lb	2.65	1.87
45 %	W/C SAND	Vulcan, Sun Valley	1396 lb	2.65	8.44
4.00 oz/cwt	WR-91 Type A	Euclid Chemicals	25.96 oz/yd³	0.00	0.03
Non Air Entrained	Air				0.27
149.7 lb/ft³	Plastic Unit Weight	Total	4043 lb		27.0 ft³

Proposed Aggregate Gradations

	2 "	1" 1/2	1"	3/4"	1/2"	3/8"	# 4	# 8	# 16	# 30	# 50	# 100	# 200	FM
1"x #4	100	100	94	69	39	16	4	0	0	0	0	0	0	7.11
3/8"x #16	100	100	100	100	100	91	16	3	0	0	0	0	0	5.90
W/C SAND	100	100	100	100	100	100	98	80	62	38	18	7	3	2.97
Combined Gradings	100	100	97	86	73	61	48	36	28	17	8	3	1	5.13

Optional Products :

Remarks :

To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Renato Kich, RCE #C052450

NATIONAL READY MIXED CONCRETE LABORATORY

1851 East Huntington Drive, Duarte, CA 91010
Laboratory Phone: (626) 358-9690 Fax (626) 359-8971

PROJECT INFORMATION

3/8"/4000 psi/110 pcf per ASTM C 567/Lightweight

Customer: DPR Construction, Inc. **Concrete Mix No.:** S69522
Project: **Date:**
Address: **Use:**
Concrete Supplier: National Ready Mix
Design Compressive Strength: 4000 psi @ 28 days **Plant:** Irwindale
W/C + P Ratio: 0.50 5.6 gal/sack **Slump Range:** 4.00 in.
Equivalent Cement Factor: 6.91 sacks/CY **General Contractor:**

CONCRETE MIX PROPORTIONS

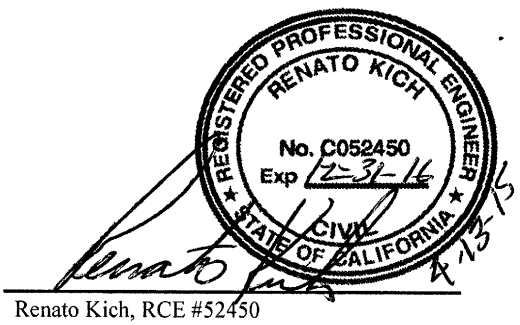
Note: All aggregate weights are saturated surface dry (SSD) weights and the moisture content of the aggregates at the time of batching must be considered when determining the total water in the mix.

Material		Source	Batch Wts (lb)	Abs. Vol. (cu.ft.)		Spec Grav.
Cement Type II/V		ASTM C150	650	3.31		3.15
Water	39.0 gal	Water	324.9	5.21		1.00
3/8" Lightweight Ag	52 %	Hydrolite	932	8.78		1.70
Concrete Sand	48 %	United Rk, Irwindale	1337	8.08		2.65
C260 Air Entrainer	0.5 oz/cwt C+P	Eucon Air 40	3.3 oz/cy			
C494 Type A WR	4.0 oz/cwt C+P	Eucon NW	26.0 oz/cy			
Air Content	6.0 %			1.62		
Plastic Unit Wt:	120.1 pcf	**Material Totals:**	3243.5 lbs.	27.00	cu.ft.	

PROPOSED AGGREGATE GRADATIONS

	1 in. (25 mm)	3/4 in. (19 mm)	1/2 in. (12.5 mm)	3/8 in. (9.5 mm)	No. 4 (4.75 mm)	No. 8 (2.36 mm)	No. 16 (1.18 mm)	No. 30 (0.6 mm)	No. 50 (0.3 mm)	No. 100 (0.15 mm)	No. 200 (0.075 mm)	FM
3/8" Lightweight Agg	100	100	100	93	40	14	4	0	0	0	0	5.49
Concrete Sand				100	99	82	64	43	21	7	2	2.84
Comb. Grad.	100	100	100	97	75	54	39	25	12	4	1	3.93

Mix Notes: * Lightweight aggregate based on 15.8 cubic feet @ 59.0 pcf.
* Lightweight mixtures require an air entraining admixture. Air content should be monitored and the batch plant notified to adjust and maintain the required air content as indicated.



Renato Kich, RCE #52450

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To comply with ASTM C94, (Section 14.4) Testing agency shall send test results to: 1851 East Huntington Drive, Duarte, CA 91010

Submittal No.: 22618 Report Name: NATCEM_B_Kich Units: US

NATIONAL CEMENT

National Cement Company of California, Inc.

LEBEC Plant

ENERGY STAR

AASHTO R18

We certify that the below described Portland Cement,at the time of shipment having May average meets the Chemical and physical requirements of TYPE II & V as per ASTM C150/C150M-11 and AASHTO M 85

Chemical Specifications and Analysis

	ASTM C150		Actual	
	TYPE II	TYPE V	Analysis	
SiO2	NA	NA	21.59	%
Al2O3	6.0 max	NR	4.06	%
Fe2O3	6.0 max	NR	3.82	%
CaO	NA	NR	63.53	%
MgO	6.0 max	6.0 max	1.28	%
SO3	3.0 max	2.3 max	2.36	% *
Loss	3.0 max	3.0 max	2.30	%
Insoluble	0.75 max	0.75 max	0.61	%
Eq.Alkalies	0.60 max	0.60 max	0.56	%
Free CaO	NR	NR	1.30	%
* Meets ASTM C150, Table 1, Option D for Type-II & V				
Potential Phase Compounds:				
C3S	NR	NR	48.4	%
C2S	NR	NR	25.0	%
C3A	8 max	5 max	4.3	%
C4AF	NR	NR	11.6	%
2C3A+C4AF	NR	25 max	20.2	%
%CO2	NA	NA	1.3	%
% Limestone	5.0 Max	5.0 Max	3.5	%
%CaCO3 in LS	70%min	70%min	86.2	%

Physical Specifications and Analysis

	ASTM C150		Actual
	TYPE II	TYPE V	Analysis
Air content of mortar (%volume) (C185)	12 max	12 max	7
Blaine, Sq.cm/gm (C204)	2600 min	2600 min	4108
Autoclave Exp. % (C215)	0.800 max	0.800 max	-0.020
Time of Setting:			
Vicat (A),Initial (C191)	45 min	45 min	141
Vicat (A),Final (C191)	375 max	375 max	250
Gilmore, Initial (C266)	60 min	60 min	188
Gilmore, Final (C266)	600 max	600 max	297
C-1038 Mortar bar exp.(%)(C452)		0.020 max	0.005
Compressive Strength:			
1 day (Psi)	NR	NR	2158
3 days (Psi)	1450 min	1160 min	3817
7 days (Psi)	2470 min	2180 min	4719
28 days (Psi)	NR	3050 min	6033

NA = Not Applicable
NR = No Requirement

This Cement Meets Or Exceeds The Following Described Specifications

ASTM & AASHTO: ASTM C150/150M-11 Types II & V Modified, (low Alkalie)
California: Section 201-1.2 of Standard Specifications for Public Works Construction.
Caltrans: Section 90-1.02B(2) of Standard Specifications, T-II Modified Low Alkali (2010 Stan. Specs.)
Section 90-2.01 of Standard Specifications, T-II Modified Low Alkali (2006 Stan. Specs.)

Main Office:

15821 Ventura Blvd.
Suite 475
Encino, Ca. 91436-2935
(818) 788-4228

NATIONAL CEMENT COMPANY OF CALIFORNIA

By: _____

Quality Manager
May-31-2017

NATIONAL READY MIXED CONCRETE COMPANY

Standard Deviation by Required Average Strengths

ACI Manual of Concrete Practice (ACI - 318-11) "Building Code Requirement for Structural Concrete"

Standard Deviation Study for Mix Design No.: S69144 1"/4000 psi/Pump-Place

Design Compressive Strength: 4000 psi **f ' cr:** **4278** psi

BACKUP DATA

Mix Design No.:	S69144	**Cement:**	6.9	Sacks	Type II/V	
Compressive Strength (f 'c):	4000 psi	**Flyash:**	0.0	%		
W/C Ratio:	0.45		**Design**	**Actual**		
Number of Test Results:	30	**Air Content:**	1.0		%	
Standard Deviation:	207	**Slump:**	4.00	4.94	inches	
Modification Factor:	1.00		**7 Days**	**28 Days**		
Modified Standard Deviation:	207	**Average :**	3983	5644	psi	
f ' cr = f ' c + 1.34s =	4278 psi	**High:**	4530	6140	psi	
f ' cr = f ' c + 2.33s - 500 =	3983 psi	**Low:**	3560	5255	psi	

	Set No.		Break Data 7 Day	28 Day	28 Day	28 Day Ave	Running Avg. of 3		Ticket No.	Slump
1	79		3990	5810	5660	5735			Load #4	5.00
2	80		4250	6130	6000	6065			Load #8	5.25
3	81		3930	5610	5510	5560	5787		Load #14	4.75
4	82		3810	5880	5760	5820	5815		Load #18	5.25
5	83		3800	5750	5660	5705	5695		Load #23	5.00
6	84		3690	5620	5560	5590	5705		Load #28	5.25
7	85		3590	5310	5240	5275	5523		Load #33	5.25
8	86		3950	5450	5270	5360	5408		Load #38	5.00
9	87		3720	5480	5480	5480	5372		Load #43	5.25
10	88		3560	5600	5480	5540	5460		Load #48	5.00
11	89		3680	5660	5550	5605	5542		Load #53	4.75
12	90		4010	5940	5780	5860	5668		Load #58	5.25
13	91		3680	5360	5290	5325	5597		Load #62	4.50
14	94		4370	5950	5840	5895	5693		Load #6	5.00
15	95		4530	6170	6110	6140	5787		Load #15	5.25
16	96		4300	5760	5690	5725	5920		Load #21	4.00
17	97		4150	5590	5480	5535	5800		Load #28	5.50
18	98		4050	5830	5770	5800	5687		Load #38	5.00
19	99		4420	5740	5660	5700	5678		Load #43	5.25
20	100		4020	5610	5590	5600	5700		Load #5	5.00
21	101		3940	5810	5700	5755	5685		Load #18	5.00
22	102		3830	5670	5590	5630	5662		Load #32	5.50
23	103		4220	5630	5480	5555	5647		Load #50	5.00
24	104		3960	5300	5210	5255	5480		Load #55	4.50
25	127		4210	5900	5770	5835	5548		Load #1	4.25
26	128		3970	5780	5580	5680	5590		Load #6	4.50
27	129		3720	5640	5410	5525	5680		Load #11	5.00
28	130		3870	5540	5530	5535	5580		Load #36	4.75
29	131		4150	5750	5660	5705	5588		Load #41	4.50
30	132		4130	5570	5460	5515	5585		Load #17	4.75

NATIONAL CEMENT

National Cement Company of California, Inc.

LEBEC Plant

ENERGY STAR

AASHTO R18

We certify that the below described Portland Cement,at the time of shipment having May average meets the Chemical and physical requirements of TYPE II & V as per ASTM C150/C150M-11 and AASHTO M 85

Chemical Specifications and Analysis

	ASTM C150		Actual	
	TYPE II	TYPE V	Analysis	
SiO2	NA	NA	21.59	%
Al2O3	6.0 max	NR	4.06	%
Fe2O3	6.0 max	NR	3.82	%
CaO	NA	NR	63.53	%
MgO	6.0 max	6.0 max	1.28	%
SO3	3.0 max	2.3 max	2.36	% *
Loss	3.0 max	3.0 max	2.30	%
Insoluble	0.75 max	0.75 max	0.61	%
Eq.Alkalies	0.60 max	0.60 max	0.56	%
Free CaO	NR	NR	1.30	%
* Meets ASTM C150, Table 1, Option D for Type-II & V				
Potential Phase Compounds:				
C3S	NR	NR	48.4	%
C2S	NR	NR	25.0	%
C3A	8 max	5 max	4.3	%
C4AF	NR	NR	11.6	%
2C3A+C4AF	NR	25 max	20.2	%
%CO2	NA	NA	1.3	%
% Limestone	5.0 Max	5.0 Max	3.5	%
%CaCO3 in LS	70%min	70%min	86.2	%

Physical Specifications and Analysis

	ASTM C150		Actual
	TYPE II	TYPE V	Analysis
Air content of mortar (%volume) (C185)	12 max	12 max	7
Blaine, Sq.cm/gm (C204)	2600 min	2600 min	4108
Autoclave Exp. % (C215)	0.800 max	0.800 max	-0.020
Time of Setting:			
Vicat (A),Initial (C191)	45 min	45 min	141
Vicat (A),Final (C191)	375 max	375 max	250
Gilmore, Initial (C266)	60 min	60 min	188
Gilmore, Final (C266)	600 max	600 max	297
C-1038 Mortar bar exp.(%)(C452)		0.020 max	0.005
Compressive Strength:			
1 day (Psi)	NR	NR	2158
3 days (Psi)	1450 min	1160 min	3817
7 days (Psi)	2470 min	2180 min	4719
28 days (Psi)	NR	3050 min	6033

NA = Not Applicable
NR = No Requirement

This Cement Meets Or Exceeds The Following Described Specifications

ASTM & AASHTO: ASTM C150/150M-11 Types II & V Modified, (low Alkalie)
California: Section 201-1.2 of Standard Specifications for Public Works Construction.
Caltrans: Section 90-1.02B(2) of Standard Specifications, T-II Modified Low Alkali (2010 Stan. Specs.)
Section 90-2.01 of Standard Specifications, T-II Modified Low Alkali (2006 Stan. Specs.)

Main Office:

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Suite 475
Encino, Ca. 91436-2935
(818) 788-4228

NATIONAL CEMENT COMPANY OF CALIFORNIA

By: _____

Quality Manager
May-31-2017

EUCON WR 91

Water Reducing, Set Retarding Admixture

Euclid Concrete Admixtures

WATER REDUCERS

EUCON WR 91

Master Format #: 03 3000 03 4000 03 7000

Description

EUCON WR 91 is a liquid, water-reducing and set retarding admixture for concrete. EUCON WR 91 shows improved setting and finishing characteristics when compared to other commonly used ASTM C 494 Type A water reducers. EUCON WR 91 may be used at a wide range of dosage rates. EUCON WR 91 does not contain calcium chloride or other potential corrosion-enhancing ingredients.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Architectural concrete
- Mass concrete
- Bridge decks
- Hot weather concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Improves setting times
- Compatible with air entraining agents

Hardened Concrete

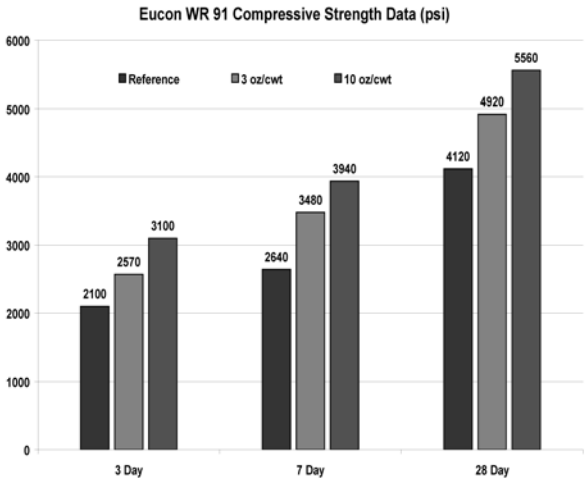
- Increases strength at all ages
- Reduces permeability
- Improves finished appearance
- Reduces cracking
- Increases durability
- Non staining

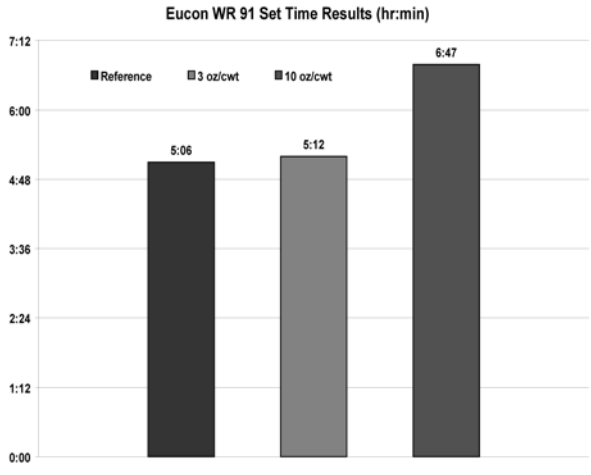
Technical Information

Perfomance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WR 91.





The Euclid Chemical Company

19218 Redwood Rd. • Cleveland, OH 44110

Phone: [216] 531-9222 • Toll-free: [800] 321-7628 • Fax: [216] 531-9596

www.euclidchemical.com

An RPM Company

Packaging

EUCON WR 91 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON WR 91 meets or exceeds the requirements of:

- ASTM C 494, Type A & D
- AASHTO M 194
- ANSI/NSF STD 61

Directions for Use

EUCON WR 91 is typically used at dosages of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WR 91 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement.

Precautions/Limitations

- Care should be taken to maintain EUCON WR 91 above freezing, however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Never agitate with air.
- Add to mix independent of other admixtures.
- In all cases, consult the Material Safety Data sheet before use.

Rev. 10.10

ACCELGUARD® NCA

Non-chloride, Accelerating & Water Reducing Admixture

Euclid Concrete Admixtures

Description

ACCELGUARD NCA is an accelerating, water reducing admixture for concrete that does not contain calcium chloride or added chloride ions. It improves properties of plastic and hardened concrete, provides a significant improvement in early stiffening and setting characteristics, improved workability and decreased bleeding and segregation. This admixture is compatible with air-entraining admixtures, HRWR admixtures (super plasticizers), and conventional water reducing admixtures. ACCELGUARD NCA works well at all temperatures but has shown to be most effective in the 35°F to 50°F (2°C to 10°C).

Primary Applications

- Cold weather concreting
- Structural and plain concrete
- Precast and post tensioned concrete

Features/Benefits

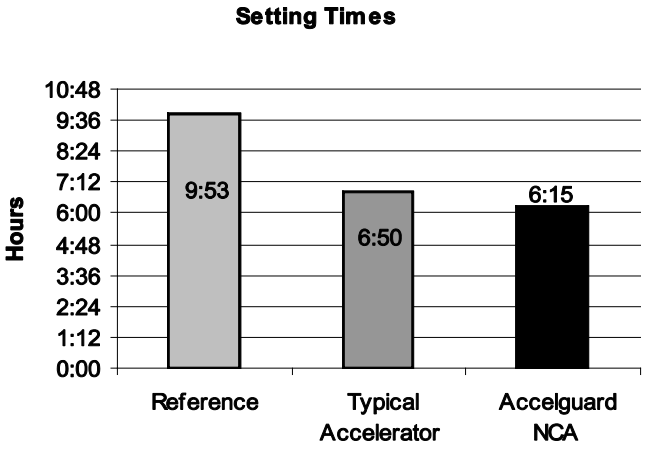
- Reduces initial set 1 to 4 hours depending on concrete temperatures
- Improves workability and provides denser concrete
- Minimizes bleeding and segregation
- Improves compressive strength development at early ages
- Decreases overtime allowing earlier finishing
- Increases protection for reinforcement in concrete

Technical Information

Typical Engineering Data

This data was created in a laboratory environment using a standard ASTM C 494 mix design. Performance will vary depending on materials and temperatures.

The ambient temperature was 38ºF (3.3ºC), the concrete temperature was 47ºF (8.3ºC) and the Accelguard NCA dose was 16 oz /cwt. (1043 mL/100 kg).



Shelf Life

2 years in original, unopened container.

Packaging

ACCELGUARD NCA is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Specifications/Compliances

- Fully complies with ASTM C 494, Type C and E admixture specifications.
- Fully complies with AASHTO M 194.
- ACI 201, Guide for Durable Concrete and ACI 302 Guide for Concrete Floor and Slab Construction prohibit the use of chlorides in many types of concrete. ACCELGUARD NCA may be used in these types of concrete such as, floors over prestressed concrete or galvanized decking, floors containing two kinds of embedded metal, reinforced concrete in moist environments and/or exposed to chloride deicing salts.

The Euclid Chemical Company
19218 Redwood Rd. • Cleveland, OH 44110
Phone: [216] 531-9222 • Toll-free: [800] 321-7628 • Fax: [216] 531-9596
www.euclidchemical.com
An RPM Company

Directions for Use

For use in concrete add ACCELGUARD NCA, with water and aggregate to the ready mix concrete truck, but do not dispense onto dry cement. For temperatures 32°F to 60°F (0°C to 16°C) add to concrete at the rate of 12 to 75 oz/100 lb of cement (780 to 4890 ml/100 kg), depending upon the desired rate of acceleration, early strength gain, stripping schedule, etc. Always follow ACI 306, "Recommended Practice for Cold Weather Concreting". For temperatures above 60°F (16°C) ACCELGUARD NCA dosage may be reduced. For information regarding freeze resistant concrete, please contact your local Euclid Chemical sales representative.

Clean-Up

Clean tools and equipment with water before cement paste hardens.

Precautions/Limitations

- ACCELGUARD NCA will freeze at temperatures of approximately -15°F (-26°C). Freezing and thawing will not harm the material if thoroughly agitated.
- Do not use air for agitation.
- Do not dispense directly onto dry cement.
- Do not use ACCELGUARD NCA with Chemcomp Cement or other modified cements without consulting The Euclid Chemical Company.
- Keep concrete from freezing until a minimum of 1000 psi (7 MPa) is achieved.
- In all cases, consult the Material Safety Data Sheet before use.

AEA-92

Air Entraining Agent For Concrete

Euclid Concrete Admixtures

AIR ENTRAINERS

AEA-92

Master Format #: 03 3000 03 4000 03 7000

Description

AEA-92 is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. It should be added to the mix independently and not with other admixtures.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing. This air void system protects concrete against damage caused by repeated freeze/thaw cycles
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation of the concrete

Technical Information

AEA-92 is an aqueous solution compound of synthetic organic chemicals. It is compatible with concrete mixes containing calcium chloride, water reducing admixtures, retarding admixtures, or high range water reducers.

Packaging

AEA-92 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

AEA-92 meets or exceeds the requirements of the following specifications:

- Corps of Engineers Specification CRD C-13
- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61

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www.euclidchemical.com

Directions for Use

AEA-92 is typically dosed at a rate of 0.1 to 4 oz per 100 lbs (6 to 260 mL per 100 kg) of total cementitious material to entrain 3% - 6% air content. The amount of AEA-92 will vary depending on type of cement, fineness of sand, temperature, design of the mix, other admixtures, etc. Concrete mixes must be tested regularly to confirm that proper air content is achieved. AEA 92 should be added directly to the sand to achieve maximum performance.

Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- In all cases, consult the Material Safety Data Sheet before use.

Rev. 10.10

EUCON AIR 40

Air Entraining Agent For Concrete

Euclid Concrete Admixtures

Description

EUCON AIR 40 is formulated for use as an air entraining admixture for concrete of all types and is manufactured under rigid control which assures uniform and precise performance. EUCON AIR 40 adds microscopic air bubbles in concrete and works especially well with high carbon fly ash. EUCON AIR 40 does not contain added chlorides and will not promote the corrosion of steel.

Primary Applications

- Ready mix concrete
- Structural concrete
- Mass concrete
- Paving concrete
- All exterior concrete subjected to freeze/thaw cycling

Features/Benefits

- Provides a stable air void system with proper bubble size and spacing which will increase durability.
- Concrete is made more resistant to de-icing salts, sulfate attack and corrosive water
- Less mixing water can be used per yard (meter) of concrete and placeability is improved
- Minimizes bleeding and segregation of the concrete

Technical Information

EUCON AIR 40 is an aqueous solution compound of synthetic organic chemicals. It is compatible with concrete mixes containing calcium chloride, water reducing admixtures, retarding admixtures, or high range water reducers.

Appearance

EUCON AIR 40 is an amber colored material which, when added to concrete does not change the concrete's natural appearance.

Packaging

EUCON AIR 40 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums and 5 gal (18.9 L) pails.

Shelf Life

2 years in original, unopened package.

Specifications/Compliances

EUCON AIR 40 meets or exceeds the requirements of the following specifications:

- Corps of Engineers Specification CRD C-13
- ASTM Specification C 260
- AASHTO Specification M 154
- ANSI/NSF STD 61 registered

Directions for Use

Dosages of 1/2 to1 oz /100 lb of cement (30 to 60 ml of/100 kg) will generally entrain 3% to 6% air in concrete. This amount will vary depending on type of cement, fineness of sand, temperature, design of the mix, carbon content of fly ash, etc. Add EUCON AIR 40 directly to the sand to achieve the maximum performance. It is safe to use higher than recommended dosages to meet desired air content. Concrete mixes must be tested periodically to confirm that the proper air content is achieved.

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Precautions/Limitations

- Consult your local Euclid Chemical representative for the proper dosage rate adjustments when using fly ash, slag or high range water reducers.
- Add to the mix independent of other admixtures.
- Excessive air entrainment will lower flexural and compressive strengths so frequent testing is recommended.
- In all cases, consult the Material Safety Data Sheet before use.

July 11, 2012

Mr. Todd Pendergrass
Werner Corporation
P.O. Box 78450
Corona, CA 92877-0148

Re: Results of Aggregate Testing
Fosters Sand and Gravel - Mayhew Canyon
Heider Project No.: 970034-29

Dear Mr. Pendergrass,

In accordance with your request, Heider Engineering Services, Inc. has performed a series of aggregate tests and evaluations for washed concrete sand from the Mayhew Canyon production facility in Corona, California. The physical testing of the aggregates was performed in accordance with ASTM C 33-93, "Standard Specification for Concrete Aggregates". The materials were sampled in June 2012 and the physical test data are attached.

The sand consists primarily of quartz monozonite, diabase, metavolcanic, quartz and feldspar combinations. The sands are generally sub-angular to sub-rounded. The physical testing for durability indicated a sound material, with a Durability Index, Caltest 229, of 83 and with a Sodium Sulfate Soundness test, ASTM C 88, percent loss of 6.6 as reported by CHJ Consultants. The results of ASTM C289-94, "Potential Alkali-Silica Reactivity of Aggregates", indicates that the fine aggregate can be considered innocuous.

It is our opinion that the fine aggregate tested and examined from this source is a suitable material for use in the manufacture of Portland Cement Concrete.

We appreciate the opportunity to provide our services. If you have any questions, or if we can be of further assistance, please contact us at your convenience.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
DENNIS W. HEIDER
47379
Exp. 12/31/2013
CIVIL
STATE OF CALIFORNIA

Steven Runyan, EIT
Staff Engineer

Dennis W. Heider, RCE
Principal Engineer

RESULTS OF LABORATORY TESTS
FOSTERS SAND AND GRAVEL
MAYHEW CANYON
CORONA, CA
TESTING PERFORMED IN JUNE 2012

FINE AGGREGATE, WASHED CONCRETE SAND, LAB SAMPLE NO. 141

Sieve Analysis, ASTM C 136, C 117

Sieve Size	% Passing, by weight
3/8"	100
#4	100
#8	86
#16	58
#30	34
#50	18
#100	7
#200	3.0

Sand Equivalent, CalTest 217

Sand Equivalent Value = 84

Durability, CalTest 229

Durability Index = 83

Organic Impurities, ASTM C 40

The supernatant liquid was lighter than organic plate No. 1 and based upon the colormetric comparison procedure, the sand is not considered to contain injurious organic impurities.

Clay Lumps and Friable Particles in Aggregates, ASTM C 142

#4 -#16: 1.1%

RESULTS OF LABORATORY TESTS
FOSTERS SAND AND GRAVEL
MAYHEW CANYON
CORONA, CA
TESTING PERFORMED IN JUNE 2012

FINE AGGREGATE, WASHED CONCRETE SAND, LAB SAMPLE NO. 141

Specific Gravity and Absorption, ASTM C 128

Bulk Specific Gravity, SSD = 2.61

Absorption = 1.4%

Potential Reactivity, ASTM C 289

Dissolved Silica, Sc, millimoles/liter = 28.3

Alkalinity Reduction, Rc, millimoles/liter = 90

Using Fig. X1.1 in Appendix of ASTM C 289, sand is considered to be Innocuous

Lightweight Pieces in Aggregate, ASTM C 123

Lightweight Pieces = 0.0%

CHJ Consultants
1355 E. Cooley Drive, Suite C, Colton, CA 92324 ◆ Phone (909) 824-7311 ◆ Fax (909) 503-1136
15345 Anacapa Road, Suite D, Victorville, CA 92392 ◆ Phone (760) 243-0506 ◆ Fax (760) 243-1225
77-564A Country Club Drive, Suite 122, Palm Desert, CA 92211 ◆ Phone (760) 772-8234 ◆ Fax (909) 503-1136

June 28, 2012

Heider Engineering Services, Inc.
800-A South Rochester Avenue
Ontario, California 91761
Attention: Mr. Dennis Heider

Job No. 12381-7

Subject: Laboratory Test Report
Quality Testing

Dear Mr. Heider:

Attached herewith are the results of the requested tests performed on samples from the above project. The samples were delivered to this firm on June 15, 2012.

We trust this information is as requested. Should questions arise, please feel free to contact this firm at your convenience.

Respectfully submitted,
CHJ CONSULTANTS

Allen D. Evans, P.E.
Vice President

REGISTERED PROFESSIONAL ENGINEER
ALLEN D. EVANS
No. 38104
Exp. 03-31-13
CIVIL
STATE OF CALIFORNIA
07-02-2012

CN/ADE:lb
Enclosure: Test Data Summary Sheet
Distribution: Heider Engineering Services, Inc. (4)

TEST DATA SUMMARY

SAMPLE: 141

MATERIAL: Washed Concrete Sand

DATE RECEIVED: 06-15-2012

SODIUM SULFATE SOUNDNESS:
(ASTM C 88)

Percent Loss After 5 Cycles	6.6

June 18, 2013

Mr. Todd Pendergrass
Chandler Aggregates Inc.
P.O. Box 78450
Corona, CA 92877-0148

Re: Results of Aggregate Testing - Chandler Aggregates, Sierra Plant
Heider Project No.: 970023-146

Dear Mr. Pendergrass,

In accordance with your request, Heider Engineering has performed a series of aggregate tests and evaluations for coarse and fine aggregates from the Coldwater Canyon production facility in Corona, California. The physical tests were performed to evaluate the material for use in Portland Cement Concrete. The physical testing of the aggregates was performed in accordance with ASTM C 33-13, "Standard Specification for Concrete Aggregates". The materials were sampled by our personnel on May 10, 2013. A summary of our findings follow with the physical test data attached.

COARSE AGGREGATE

The coarse aggregate examined is crushed gravel, primarily derived from an alluvial deposit near the base of Coldwater Canyon on the northeast flank of the Santa Ana Mountains. The aggregates consist primarily of rock material derived from metamorphic and igneous sources. The shape of the rock ranges from sub-rounded to angular. The degradation of the aggregate, by physical and chemical methods, revealed LA Abrasion Test values ranging from 10% to 27% and Sodium Sulfate Soundness Test values of 2.5% to 4.9% for the coarse aggregate as reported by CHJ Consultants. This testing indicates durable aggregate material.

The results of ASTM C 289-94, "Potential Alkali-Silica Reactivity of Aggregates", revealed that the coarse aggregates do not show a potential for alkali-silica aggregate reactivity and are considered to be innocuous.

It is our opinion that the coarse aggregate tested and examined from this source is a material suitable for use in the manufacture of Portland Cement Concrete.

FINE AGGREGATE - WASHED CONCRETE SAND

The fine aggregate consists primarily of metamorphic and igneous sand particles, along with quartz, feldspars and biotite. Physical testing for durability indicated a sound material, with a Durability Index, CalTest 229, of 66 and with a Sodium Sulfate Soundness test, ASTM C 88, percent loss of 5.3 %, as reported by CHJ Consultants. The sand particles are primarily sub-rounded to angular. The result of ASTM C 289 - 94, "Potential Alkali-Silica Reactivity of Aggregates", indicates that the fine aggregate can be considered innocuous.

It is our opinion that the fine aggregate tested and examined from this source is a material suitable for use in the manufacture of Portland Cement Concrete.

We appreciate the opportunity to provide our services. If you have any questions, or if we can be of further assistance, please contact us at your convenience.

Sincerely,

Steven Runyan, FE/EIT
Staff Engineer

Dennis W. Heider, RCE
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
DENNIS W. HEIDER
47379
Exp. 12/31/2013
CIVIL
STATE OF CALIFORNIA

CHANDLER AGGREGATES, INC.
SIERRA PLANT - CORONA, CA
TESTING PERFORMED IN JUNE 2013

COARSE AGGREGATE

	#2 Aggregate Lab #70	#3 Aggregate Lab #71	#4 Aggregate Lab #72
Sieve Analysis, ASTM C 136			
Sieve Size:		Percent Passing	
2”	100		
1 1/2”	98	100	
1”	39	94	
3/4”	6	60	
1/2”	1	23	100
3/8”	1	8	95
#4	1	1	14
#8		1	2
#16			1
#30			1
#50			1
Cleanness Value, CalTest 227	94	94	86
Durability Index, CalTest 229	76	73	67

LA Abrasion ASTM C 131

		Percent Loss	
Grading:	A	B	C
100 Revolutions	2	6	6
500 Revolutions	10	26	27

CHANDLER AGGREGATES, INC.
SIERRA PLANT - CORONA, CA
TESTING PERFORMED IN JUNE 2013

COARSE AGGREGATE

	#2 Aggregate Lab #70	#3 Aggregate Lab #71	#4 Aggregate Lab #72
Clay Lumps and Friable Particles in Aggregates, ASTM C 142			
Percent of Clay Lumps and Friable Particles	0.35	0.60	1.5
Specific Gravity and Absorption, ASTM C 127			
Bulk Specific Gravity, SSD	2.65	2.62	2.59
Absorption (%)	1.6	2.1	2.6

Potential Reactivity, ASTM C 289 (Combined #2, #3 & #4 Aggregate)

Dissolved Silica, Sc,millimoles/liter	48.3
Alkalinity Reduction, Rc, millimoles/liter	280
Using Fig. X1.1 in Appendix of ASTM C 289	All Coarse Aggregates are considered to be Innocuous

Lightweight Pieces in Aggregate, ASTM C 123

Lightweight Pieces (%)	0.0	0.0	0.0

RESULTS OF LABORATORY TESTS
CHANDLER AGGREGATES, INC.
SIERRA PLANT - CORONA, CA
TESTING PERFORMED IN JUNE 2013

FINE AGGREGATE, WASHED CONCRETE SAND, LAB SAMPLE NO. 73

Sieve Analysis, ASTM C 136, C 117

Sieve Size	% Passing, by weight
3/8”	100
#4	100
#8	88
#16	59
#30	35
#50	14
#100	8
#200	3

Sand Equivalent, CalTest 217

Sand Equivalent Value = 80

Durability, CalTest 229

Durability Index = 66

Organic Impurities, ASTM C 40

The supernatant liquid was lighter than organic plate No. 1 and based upon the colormetric comparison procedure, the sand is not considered to contain injurious organic impurities.

Clay Lumps and Friable Particles in Aggregates, ASTM C 142

#4 -#16: 1.2 %

RESULTS OF LABORATORY TESTS
CHANDLER AGGREGATES, INC.
SIERRA PLANT - CORONA, CA
TESTING PERFORMED IN JUNE 2013

FINE AGGREGATE, WASHED CONCRETE SAND, LAB SAMPLE NO. 73

Specific Gravity and Absorption, ASTM C 128

Bulk Specific Gravity, SSD = 2.627

Absorption = 2.53%

Potential Reactivity, ASTM C 289

Dissolved Silica, Sc, millimoles/liter = 32.3

Alkalinity Reduction, Rc, millimoles/liter = 220

Using Fig. X1.1 in Appendix of ASTM C 289, sand is considered to be Innocuous

Lightweight Pieces in Aggregate, ASTM C 123

Lightweight Pieces = 0.0%

VULCAN MATERIALS COMPANY - Western Division

Contractor: ***National Ready Mixed Concrete Co.*** March 7, 2013

Project: ***Unknown***

Plant: ***Vulcan Materials / Sun Valley***

Material: ***1" X # 4 Gravel (ASTM #56)***

This is to certify that Vulcan Materials Company, Western Division, **Sun Valley**, will supply 1" x # 4 gravel (ASTM #56) to the above listed project and that this product will conform to Tables #2 & #3 of ASTM designation C33 - 11.

Sieve Size		ASTM C33 Table 2 - size # 56	Percent Passing
37.5 mm	(1 1/2")	100	100
25 mm	(1")	90 - 100	93
19 mm	(3/4")	40 - 85	68
12.5 mm	(1/2")	10 - 40	26
9.5 mm	(3/8")	0 - 15	9
4.75 mm	(No. 4)	0 - 5	3
75 um	(No. 200)	0 - 1	1.0

Table 3 - Negligible Weathering Region

	method	result	spec.
Clay Lumps / Friable Particles	C 142	0.3%	5 % Max.
Material Finer than #200	C 117	1.0%	1.0 % Max.
Coal and Lignite	C 123	0.0%	0.5 % Max.
Abrasion (B) 500 rev.s	C 131	36%	50 % Max.
Durability Index	D3744	85%	

Submitted by:

Timothy Reed
Technical Service Specialist
TR/rm

*** Please Note: ** NOT VALID IF ALTERED ****

If you should have any questions regarding this submittal please contact the Los Angeles Regional Laboratory at (626) 856-6190

16009 Foothill Boulevard • Irwindale, California 91706 • FAX (626) 969-2918

VULCAN MATERIALS COMPANY - Western Division

Contractor: ***National Ready Mixed Concrete Co.*** March 7, 2013

Project: ***Unknown***

Plant: ***Vulcan Materials / Sun Valley***

Material: ***3/8" Pea Gravel (ASTM #8)***

This is to certify that Vulcan Materials Company, Western Division, **Sun Valley**, will supply 3/8" Pea Gravel (ASTM #8) to the above listed project and that this product will conform to Tables #2 & #3 of ASTM designation C33 - 11.

Sieve Size		ASTM C33 Table 2 - size #8	Percent Passing
12.5 mm	(1/2")	100	100
9.5 mm	(3/8")	85 - 100	87
4.75 mm	(No. 4)	10 - 30	13
2.36 mm	(No. 8)	0 - 10	4
1.18 mm	(No. 16)	0 - 5	0
75 um	(No. 200)	0-1	0.4

Table 3 - Negligible Weathering Region

	method	result	spec.
Clay Lumps / Friable Particles	C 142	0.4%	5 % Max.
Material Finer than #200	C 117	0.1%	1.0 % Max.
Coal and Lignite	C 123	0.0%	0.5 % Max.
Abrasion (C) 500 rev.s	C 131	34%	50 % Max.
Durability Index	D3744	89%	

Submitted by:

Timothy Reed
Technical Service Specialist
TR/rm

*** Please Note: ** NOT VALID IF ALTERED ****

If you should have any questions regarding this submittal please contact the Los Angeles Regional Laboratory at (626) 856-6190

16009 Foothill Boulevard • Irwindale, California 91706 • FAX (626) 969-2918

VULCAN MATERIALS COMPANY - Western Division

Contractor: ***National Ready Mixed Concrete Co.*** March 7, 2013

Project: ***Unknown***

Plant: ***Vulcan Materials / Sun Valley***

Material: ***Washed Concrete Sand (WCS)***

This is to certify that Vulcan Materials Company, Western Division, **Sun Valley**, will supply Washed Concrete Sand (WCS) to the above listed project and that this product will conform to Table 1 and the grading limits in section 6, of ASTM designation C33 - 11.

Sieve Size		ASTM C33 Section 6	Percent Passing
9.5 mm	(3/8")	100	100
4.75 mm	(No. 4)	95 - 100	98
2.36 mm	(No. 8)	80 - 100	78
1.18 mm	(No. 16)	50 - 85	59
600 um	(No. 30)	25 - 60	36
300 um	(No. 50)	5 - 30	15
150 um	(No. 100)	0 - 10	6
75 um	(No. 200)	0 - 5 *	3.0

	method	result	spec.
Fineness Modulous (F.M.)	C 136	3.1	2.3 - 3.1

Table 1

	method	result	spec.
Clay Lumps / Friable Particles	C 142	0.5%	3 % Max.
Material Finer than #200 *	C 117	3.0%	5 % Max.
Coal and Lignite *	C 123	0.0%	1 % Max.
Durability Index	D3744	81.0%	

* All other concrete

Submitted by:

Timothy Reed
Technical Service Specialist
TR/rm

If you should have any questions regarding this submittal please contact the Los Angeles Regional Laboratory at (626) 856-6190

*** Please Note: ** NOT VALID IF ALTERED ****

16009 Foothill Boulevard • Irwindale, California 91706 • FAX (626) 969-2918

Vulcan
Materials Company

June 26, 2012

Via Fax

National Ready Mixed Concrete Co.
Marc Robert

Re.: Sun Valley Concrete Aggregates (Fine and Coarse)
C289 Test Data

Dear Mr. Robert:

Upon your request, we have attached the C289 test data for concrete aggregates from our Sun Valley Quarry. The C289 testing was conducted by Anaheim Test Laboratory on fine and coarse aggregates samples completed testing on January 12, 2012.

Vulcan Materials Company ("Vulcan") is committed to providing quality products and service to its customers. With that in mind, we would like to address your recent request and discuss with you the importance of determining the alkali silica reactivity (ASR) potential of your concrete mixes. There are many factors that can contribute to ASR, including aggregate mineralogy, the alkali level of the cement used, exposure of the concrete to moisture, and exposure to certain contaminants and chemicals.

To date, we are not aware of any reactivity issues when using aggregate from the Sun Valley Quarry in concrete. Nevertheless, we feel it is important for our customers to consider the potential for ASR when using any aggregate source.

This potential for ASR should be taken into account during the mix design process. This may include the possibility of testing combinations of aggregates and cement for ASR. Testing and investigation may also include the utilization of mitigation measures, such as the addition of fly ash or other materials. For further reference, you may want to consult or review information on ASR, such as that published by the American Concrete Institute (ACI). Vulcan does not control the mix designs or the amount and type of alkalis in the cement, or other types of potentially reactive coarse and fine aggregates that may be included in a mix.

Sincerely yours,

Timothy J. Saenz
Technical Service Manager
Southern California Region
Western Division

TS/rm

ANAHEIM TEST LABORATORY

3008 S. ORANGE AVENUE
SANTA ANA, CALIFORNIA 92707
PHONE (714) 549-7267

DATE: 1/12/12

TO:

VULCAN MATERIALS COMPANY
16009 FOOTHILL BLVD.
IRWINDALE, CA. 91706

P.O. NO.: 1082489

LAB NO.: B-5409-2, 1-3

SPECIFICATION: ASTM C-289

ATTN: GREG READER

MATERIAL: WCS/3/8" & 1" GRAVEL

PROJECT: SUN VALLEY
DATE SAMPLED: 1/3/12

ANALYTICAL REPORT
POTENTIAL REACTIVITY

	DISSOLVED SILICA S_C MILLIMOLES/1	ALKALINITY REDUCTION R_C MILLIOMLES/1
#1) WCS	48.6	110
#2) 3/8" GRAVEL	24.3	130
#3) 1" GRAVEL	22.0	115

RESPECTFULLY SUBMITTED

WES BRIDGER CHEMIST

Material Safety Data Sheet	U.S. Department of Labor
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910 1200. Standard must be consulted for specific requirements.	Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072
IDENTITY *(as Used on Label and List)* ***READY-MIXED CONCRETE***	*Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.*

Section I

Manufacturer's name National Ready Mixed Concrete Co.	Emergency Telephone Number 818-728-5200
Address *(Number, Street, City, State and ZIP Code)* 15821 Ventura Blvd, Suite 475	Telephone Number for Information 818-728-5200
Encino, Ca 91436-4778	Date Prepared 3-26-2007
	Signature of Preparer *(optional)* *Russell H. Morton*

Section II—Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity, Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Formula—Mixtures of Portland or blended cements, concrete aggregates and chemical admixtures.				
Portland and blended Cements: Portland Cement (CAS # 65997-15-1)				
$3CaO\text{-}SiO_2$ (CAS # 12168-85-3)				
$2CaO\text{-}SiO_2$ (CAS # 10034-77-2)				
$3CaO\text{-}A1_2O_3$ (CAS # 12042-78-3)				
$4CaO\text{-}A1_2O_3\text{-}Fe_2O_3$ (CAS # 12068-35-8)				
$CaSO_4\text{-}xH_2O$ (CAS # 13397-24-5)				
Plus traces of CaO, MgO, K_2SO_4, and Na_2SO_4, may be present				
Other ingredients: Concrete aggregates, inert gravel, sand and rocks				
Admixtures may include, fly ash, granulated slag, and very small amounts of organic materials				
which have no effect on the hazards associated with the use of the product,				
Carcinogenic Potential: Concrete frequently contains crystalline silica in concentrations greater then 0.1%, principally contributed by the aggregates. Respirable crystalline silica is classified by IARC (International Agency for Research on Cancer) as a known carcinogen and by the NTP (National Toxicology Program) as "reasonably anticipated to be a carcinogen." Crystalline silica in wet concrete is not respirable and does not pose a hazard when the concrete is in its plastic or unhardened state. Once concrete has hardened, airborne dust generated by grinding, sawing, drilling, breaking, etc. can lead to potentially hazardous exposures to workers and appropriate respiratory protection precautions should be taken.				

Section III—Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_20 = 1)	N/A
Vapor Pressure (mm Hg)	N/A	Melting Point	N\A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N\A
Solubility in Water Slight (0.01-1%) pH 12-13.5			
Appearance and Odor Gray, plastic, flowable, granular mud, and odorless			

Section IV—Fire and Explosion Hazard Data

Flash Point (Method Used) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures N/A			
Unusual Fire and Explosion Hazards None			

Section V—Reactivity Data

Stability	Unstable		Conditions to Avoid Aluminum powder and other alkaline earth elements will react producing hydrogen gas.
	Stable	XXX	However, product hardens in 2 to 8 hours and is no longer hazardous
Incompatibility *(Materials to Avoid)*			
Hazardous Decomposition or Byproducts			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	XXX	

Section VI—Health Hazard Data

Route(s) of Entry	Inhalation? No	Skin? Yes	Ingestion? No
Health Hazards *(Acute and Chronic)* Due to a high pH., must avoid contact with skin and eyes. Wet plastic (unhardened concrete) can dry the skin and cause alkali burns.			
Chronic—Hypersensitive individuals may develop an allergic dermatitis (Cement Dermatitis). Cement may contain trace amounts of chromium.			
Carcinogenicity	NTP? No	IARC Monographs? No	OSHA Regulated? No
Signs and Symptoms of Exposure Irritation of skin and burning sensation, particularly when exposure is in an area of skin previously subject to abrasion or irritation. Must avoid contact with skin and eyes.			
Medical Conditions Generally Aggravated by Exposure None known			
Emergency and First Aid Procedures Irrigate eyes with water. Washed exposed areas of the body with soap and water, and rinse with copious amounts of water.			

Section VII—Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled
Spill does not increase hazard
Waste Disposal Method
Material can be retained until it hardens, when it can be disposed of as common waste.
Precautions to Be Taken in Handling and Storing Use barrier creams, gloves, boots, and clothing to protect skin from prolonged contact with plastic concrete. Particularly, avoid abrasion of the skin in contact with unhardened plastic concrete. Precautions must be observed because cement burns can occur with little or no warning—little heat is sensed. Eye protection is not generally required except when placement methods cause splash – then tight fitting goggles should be used.

Section VII—Control Measures

Respiratory Protection *(Specify Type)* Wet – Not required. Dry – Use NIOSH/OSHA approved dust respirator if dust is generated		
Ventilation	Local Exhaust	Special
N/A	Mechanical *(General)*	Other
Protective Gloves See VII		Eye Protection See VII
Other Protective Clothing or Equipment See VII		
Work/Hygienic Practices See VII		

EUCLID CHEMICAL

EUCON NW - BULK GALLONS

Version *3.* Print Date 10/14/2011
REVISION DATE: 10/13/2011

SECTION 1 - PRODUCT IDENTIFICATION

Trade name	:	EUCON NW - BULK GALLONS
Product code	:	717 99
COMPANY	:	Euclid Chemical Company 19218 Redwood Road Cleveland, OH 44110
Telephone	:	1-800-321-7628
Emergency Phone:	:	U.S. only: 1-800-424-9300 International Users Call Collect: 1-703-527-3887
Product use	:	Admixture

SECTION 2 - HAZARDS IDENTIFICATION

Emergency Overview

Brown. Liquid. No serious effects anticipated under normal conditions of use. Leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention.

Acute Potential Health Effects/ Routes of Entry

Inhalation	:	No serious effects anticipated under normal conditions of use.
Eyes	:	Direct contact may cause mild irritation.
Ingestion	:	May cause gastrointestinal irritation, nausea, and vomiting.
Skin	:	May cause mild irritation.

Aggravated Medical Conditions

Pre-existing eye, skin and respiratory disorders may be aggravated by exposure.

Chronic Health Effects

Fillers are encapsulated and not expected to be released from product under normal conditions of use.

SECTION 3 - PRODUCT COMPOSITION

Chemical Name	CAS-No.	Weight %
Water	7732-18-5	40.0 - 70.0
Calcium lignosulfonate	8061-52-7	15.0 - 40.0
Sodium lignosulfonate	8061-51-6	10.0 - 30.0
Corn syrup	8029-43-4	5.0 - 10.0
Triethanolamine	102-71-6	1.0 - 5.0

SECTION 4 - FIRST AID MEASURES

Get immediate medical attention for any significant overexposure.

Inhalation	:	Leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention.

Eye contact	:	Flush with water for 15 minutes. If irritation persists, get medical attention.
Skin contact	:	Wash area of contact thoroughly with hand cleaner followed by soap and water. If irritation, rash or other disorders develop, get medical attention immediately.
Ingestion	:	Get medical attention. Do not induce vomiting.
Notes to physician	:	Not applicable.

SECTION 5 - FIRE FIGHTING MEASURES

Flash point	:	Not available.
Method	:	Not available.
Lower explosion limit	:	Not available.
Upper explosion limit	:	Not available.
Autoignition temperature	:	Not available.
Extinguishing media	:	This product is not expected to burn under normal conditions of use.
Hazardous combustion products	:	Carbon monoxide and carbon dioxide can form.Smoke, fumes.
Protective equipment for firefighters	:	Use accepted fire fighting techniques. Wear full firefighting protective clothing, including self-contained breathing apparatus (SCBA).
Fire and explosion conditions	:	This product not expected to ignite under normal conditions of use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Stop flow. Contain spill. Keep out of water courses. Absorb spill in sand, earth or other suitable material. Transfer to appropriate container for disposal. Use appropriate protective equipment. Avoid contact with material.

SECTION 7 - HANDLING AND STORAGE

Handle in compliance with common hygienic practices. Clean hands thoroughly after handling. Keep from freezing. Do not use in confined or poorly ventilated areas. Prevent inhalation of vapor, ingestion, and contact with skin eyes and clothing. Keep container closed when not in use. Precautions also apply to emptied containers. Store in sealed containers in a dry, ventilated warehouse location above freezing.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protection equipment

Respiratory protection	:	Not required under normal conditions of use.Wear appropriate, NIOSH/MSHA approved respirator with combination particulate filter and vapor/gas removing cartridge when the ventilation is not adequate or if it is necessary to abrade or grind surfaces coated with this product.
Hand protection	:	Use suitable impervious rubber or vinyl gloves and protective apparel to reduce exposure.
Eye protection	:	Wear appropriate eye protection.Wear chemical safety goggles and/or face shield to prevent eye contact. Do not wear contact lenses. Do not touch eyes with contaminated body parts or materials. Have eye washing facilities readily

available.

Skin and body protection	:	Prevent contact with shoes and clothing. Use rubber apron and overshoes.
Protective measures	:	Other equipment not normally required.Use professional judgment in the selection, care, and use.
Engineering measures	:	Not required under normal conditions of use.Use local exhaust when the general ventilation is inadequate.

Exposure Limits

Chemical Name	CAS Number	Regulation	Limit	Form
Triethanolamine	102-71-6	ACGIH TWA:	5 mg/m3	

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Color	:	Brown
Odor	:	Slight
pH	:	6 - 9
Vapour pressure	:	Not available.
Vapor density	:	Heavier than air
Melting point/range	:	Not available.
Freezing point	:	Not available.
Boiling point/range	:	250 ℉, 121 ℃
Water solubility	:	Soluble
Specific Gravity	:	1.2
% Volatile Weight	:	57.1 %

SECTION 10 - REACTIVITY / STABILITY

Substances to avoid	:	Strong acids.Strong bases.
Stability	:	Stable
Hazardous polymerization	:	Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

Sodium lignosulfonate, CAS-No.: 8061-51-6
Acute oral toxicity (LD-50 oral) 40,000 mg/kg (Rat)

Triethanolamine, CAS-No.: 102-71-6
Acute oral toxicity (LD-50 oral) 8,680 mg/kg (Rat) 8,000 mg/kg (Guinea pig)
Acute dermal toxicity (LD-50 dermal) 20,000 mg/kg (Rabbit)

SECTION 12 - ECOLOGICAL INFORMATION

No Data Available

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal Method : Waste not regulated under RCRA. Dispose of in compliance with state and local regulations.

SECTION 14 - TRANSPORTATION / SHIPPING DATA

TDG / DOT Shipping Description:

NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

North American Inventories:
All components are listed or exempt from the TSCA inventory.
This product or its components are listed on, or exempt from the Canadian Domestic Substances List.

U.S. Federal Regulations:

SARA 313 Components : None present or none present in regulated quantities.

SARA 311/312 Hazards : Acute Health Hazard

OSHA Hazardous Components :
Triethanolamine 102-71-6

OSHA Status: Considered hazardous based on the following criteria: : Irritant

OSHA Flammability : Not Regulated

Regulatory VOC (less water and exempt solvent) : 0 g/l

VOC Method 310 : 0 %

U.S. State Regulations:

MASS RTK Components	:	Triethanolamine	102-71-6
Penn RTK Components	:	Water	7732-18-5
		Calcium lignosulfonate	8061-52-7
		Sodium lignosulfonate	8061-51-6
		Corn syrup	8029-43-4
		Triethanolamine	102-71-6
NJ RTK Components	:	Water	7732-18-5
		Calcium lignosulfonate	8061-52-7
		Sodium lignosulfonate	8061-51-6

Corn syrup	8029-43-4
Triethanolamine	102-71-6

Components under California Proposition 65:
WARNING! Contains chemicals known to the State of California to cause cancer, birth defects and/or other reproductive harm

SECTION 16 - OTHER INFORMATION

HMIS Rating :

Health	1
Flammability	0
Reactivity	0
PPE	

0 = Minimum
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Further information:

For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

Prepared by: Rich Mikol

Legend

ACGIH - American Conference of Governmental Hygienists
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DOT - Department of Transportation
DSL - Domestic Substance List
EPA - Environmental Protection Agency
HMIS - Hazardous Materials Information System
IARC - International Agency for Research on Cancer
MSHA - Mine Safety Health Administration
NDSL - Non-Domestic Substance List
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
RTK - Right To Know
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
V - Volume
VOC - Volatile Organic Compound
WHMIS - Workplace Hazardous Materials Information System

Material Safety Data Sheet

The Euclid Chemical Company

EUCON SRA+ BULK GALLONS

Version *1.* Print Date 10/29/2008
REVISION DATE: 05/09/2006

SECTION 1 - PRODUCT IDENTIFICATION

Trade name	:	EUCON SRA+ BULK GALLONS
Product code	:	
COMPANY	:	Euclid Chemical Company 19218 Redwood Road Cleveland, OH 44110
Telephone	:	1-800-321-7628
Emergency Phone:	:	U.S. only: 1-800-255-3924 International Users Call Collect: 1-813-248-0585
Product use	:	Admixture

SECTION 2 - HAZARDS IDENTIFICATION

Emergency Overview

Colorless. Liquid. May cause moderate irritation to the respiratory system. May cause nausea, headaches, and dizziness. May cause drowsiness, weakness, and fatigue. Move to fresh air. If required, artificial respiration or administration of oxygen can be performed by trained personnel. Leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention.

Acute Potential Health Effects/ Routes of Entry

Inhalation	:	May cause moderate irritation to the respiratory system. May cause nausea, headaches, and dizziness. May cause drowsiness, weakness, and fatigue.
Eyes	:	Vapor and/or mist may cause eye irritation. Direct contact may cause temporary redness and discomfort.
Ingestion	:	May cause irritation to the mouth, throat and stomach. May cause gastrointestinal irritation, nausea, and vomiting.
Skin	:	May cause moderate irritation.

Aggravated Medical Conditions

Pre-existing eye, skin, liver, kidney, and respiratory disorders may be aggravated by exposure.

Chronic Health Effects

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Fillers are encapsulated and not expected to be released from product under normal conditions of use.

Target Organs: Skin, Eye, Lung, Liver, Kidney, Nerve, Reproductive

SECTION 3 - PRODUCT COMPOSITION

Chemical Name	CAS-No.	Weight %
Dipropylene glycol n-butyl ether	29911-28-2	> 60.0

SECTION 4 - FIRST AID MEASURES

Get immediate medical attention for any significant overexposure.

Inhalation	:	Move to fresh air. If required, artificial respiration or administration of oxygen can be performed by trained personnel.Leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention.
Eye contact	:	Flush with water for at least 15 minutes while holding eye lids apart. Get medical attention immediately.
Skin contact	:	Clean area of contact thoroughly using soap and water. If irritation, rash or other disorders develop, get medical attention immediately.
Ingestion	:	Do not induce vomiting unless advised by a physician. Call nearest Poison Control Center or Physician immediately.

SECTION 5 - FIRE FIGHTING MEASURES

Flash point	:	212 °F, 100 °C
Method	:	Setaflash Closed Cup
Lower explosion limit	:	Not available.
Upper explosion limit	:	Not available.
Autoignition temperature	:	Not available.
Extinguishing media	:	If water fog is ineffective, use carbon dioxide, dry chemical or foam.
Hazardous combustion products	:	Smoke, fumes.Carbon monoxide and carbon dioxide can form.Nitrogen oxides can form.
Protective equipment for firefighters	:	Use accepted fire fighting techniques. Wear full firefighting protective clothing, including self-contained breathing apparatus (SCBA).Water may be used to cool containers to minimize pressure build-up.
Fire and explosion conditions	:	Vapor concentrations in enclosed areas may ignite explosively.Product may ignite if heated in excess of its flash point.Vapors may travel to sources of ignition and flashback.Closed container, may burst when exposed to extreme heat.Empty containers may contain ignitable vapors.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Use appropriate protective equipment. Avoid contact with material. Remove sources of ignition immediately. Stop flow of material if safe to do so. Contain spill and keep out of water courses. Ventilate area.

SECTION 7 - HANDLING AND STORAGE

Prevent inhalation of vapor, ingestion, and contact with skin eyes and clothing. Keep container closed when not in use. Precautions also apply to emptied containers. To prevent generation of static discharges, use bonding/grounding connection when pouring liquid. Extinguish all ignition sources including pilot lights, non-explosion proof motors and electrical equipment until vapors dissipate. Personal protective equipment must be

worn during maintenance or repair of contaminated mixer, reactor, or other equipment. Keep container closed when not in use. Vapor may migrate to sources of ignition. Do not smoke, weld, generate sparks, or use flame near container. Store in sealed containers in a cool, dry, ventilated warehouse location.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protection equipment

Respiratory protection	:	Wear appropriate, properly fitted NIOSH/MSHA approved organic vapor or supplied air respirator when airborne contaminant level(s) are expected to exceed exposure limits indicated on the MSDS. Follow manufacturer's directions for respirator use.
Hand protection	:	Use suitable impervious nitrile or neoprene gloves and protective apparel to reduce exposure.
Eye protection	:	Wear appropriate eye protection.Wear chemical safety goggles and/or face shield to prevent eye contact. Do not wear contact lenses. Do not touch eyes with contaminated body parts or materials. Have eye washing facilities readily available.
Protective measures	:	Use professional judgment in the selection, care, and use.Inspect and replace equipment at regular intervals.
Engineering measures	:	Use only in well ventilated areas. Provide maximum ventilation in enclosed areas.Use local exhaust when the general ventilation is inadequate.

Exposure Limits
No known components with exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Form	:	Liquid
Color	:	Colorless
Odor	:	Mild
pH	:	Not available.
Vapour pressure	:	< 459 kPa at 68 °F
Vapor density	:	Heavier than air
Melting point/range	:	Not available.
Freezing point	:	Not available.
Boiling point/range	:	444.2 °F, 229 °C
Water solubility	:	Slightly soluble
Specific Gravity	:	0.91
% Volatile Weight	:	0.0 %

SECTION 10 - REACTIVITY / STABILITY

Substances to avoid	:	Oxidizing agents.Strong acids.Strong bases.
Stability	:	Stable under normal conditions. Avoid welding arcs, flames or other high temperature sources.
Hazardous polymerization	:	Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

No Data Available

SECTION 12 - ECOLOGICAL INFORMATION

No Data Available

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal Method	:	Waste not regulated under RCRA. Incinerate at EPA approved facility or dispose of waste in compliance with state and local regulations.

SECTION 14 - TRANSPORTATION / SHIPPING DATA

TDG / DOT Shipping Description:

NOT REGULATED

SECTION 15 - REGULATORY INFORMATION

North American Inventories:

All components are listed or exempt from the TSCA inventory.
This product or its components are listed on, or exempt from the Canadian Domestic Substances List.

U.S. Federal Regulations:

SARA 313 Components	:	None present or none present in regulated quantities.
SARA 311/312 Hazards	:	Based on an evaluation of the components used, this product does not contain hazardous ingredients identified as per 29 CFR 1910.1200
OSHA Hazardous Components :		
OSHA Flammability	:	IIIB
Regulatory VOC (less water and exempt solvent)	:	0 g/l
VOC Method 310	:	0 %

EUCON SRA+ BULK GALLONS

Version *1.* Print Date 10/29/2008
REVISION DATE: 05/09/2006

U.S. State Regulations:

Penn RTK Components	:	Dipropylene glycol n-butyl ether	29911-28-2
NJ RTK Components	:	Dipropylene glycol n-butyl ether	29911-28-2

Chemicals known to the State of California to cause cancer birth defects and/or other reproductive harm:
None known.

SECTION 16 - OTHER INFORMATION

HMIS Rating :

Health	1
Flammability	1
Reactivity	0
PPE	

0 = Minimum
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Further information:

For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

Prepared by: Rich Mikol

Legend

ACGIH - American Conference of Governmental Hygienists
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
DOT - Department of Transportation
DSL - Domestic Substance List
EPA - Environmental Protection Agency
HMIS - Hazardous Materials Information System
IARC - International Agency for Research on Cancer
MSHA - Mine Safety Health Administration
NDSL - Non-Domestic Substance List
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
RCRA - Resource Conservation and Recovery Act
RTK - Right To Know
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
V - Volume
VOC - Volatile Organic Compound
WHMIS - Workplace Hazardous Materials Information System

EUCON WR 91

Water Reducing, Set Retarding Admixture

EUCLID CHEMICAL

Description

EUCON WR 91 is a liquid, water-reducing and set retarding admixture for concrete. EUCON WR 91 shows improved setting and finishing characteristics when compared to other commonly used ASTM C 494 Type A water reducers. EUCON WR 91 may be used at a wide range of dosage rates. EUCON WR 91 does not contain calcium chloride or other potential corrosion-enhancing ingredients.

Primary Applications

- Flatwork concrete
- General ready mix concrete
- Architectural concrete
- Mass concrete
- Bridge decks
- Hot weather concrete

Features/Benefits

Plastic Concrete

- Improves finishability
- Improves workability
- Reduces water requirement
- Reduces segregation
- Improves setting times
- Compatible with air entraining agents

Hardened Concrete

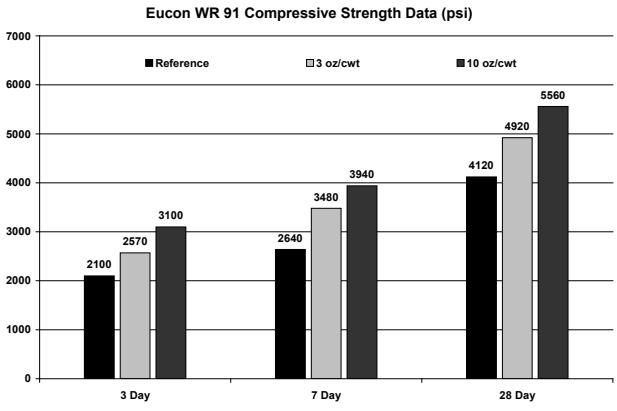
- Increases strength at all ages
- Reduces permeability
- Improves finished appearance
- Reduces cracking
- Increases durability
- Non staining

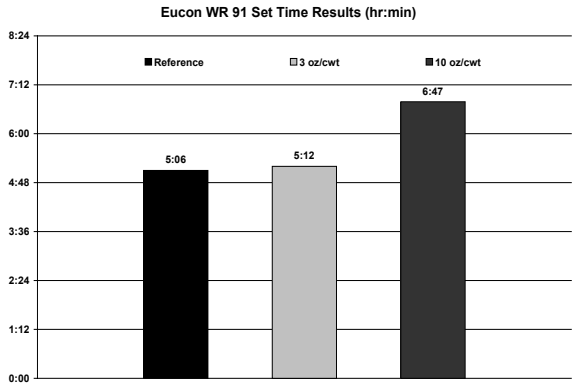
Technical Information

Perfomance Data

The following test results were achieved using typical ASTM C 494 mix design requirements, 517 lb/yd^3 (307 kg/m^3) cement content and similar (± 0.5)% air content.

These results were obtained under laboratory conditions with materials and mix designs meeting the specifications of ASTM C 494. Changes in materials and mix designs can affect the dosage response of EUCON WR 91.





19215 Redwood Road • Cleveland, OH 44110
800-321-7628 t • 216-531-9596 f

www.euclidchemical.com

Packaging

EUCON WR 91 is packaged in bulk, 275 gal (1041 L) totes, 55 gal (208 L) drums, and 5 gal (18.9 L) pails.

Shelf Life

1 year in original, unopened container.

Specifications/Compliances

EUCON WR 91 meets or exceeds the requirements of:

- ASTM C 494, Type A & D
- AASHTO M 194
- ANSI/NSF STD 61

Directions for Use

EUCON WR 91 is typically used at dosages of 2 to 10 oz per 100 lbs (130 to 650 mL per 100 kg) of cementitious material. Higher dosages are acceptable with prior testing and confirmation of the desired performance with specific materials being used.

EUCON WR 91 should be added to the initial batch water of the concrete mixture. Do not dispense onto dry cement.

Precautions/Limitations

- Care should be taken to maintain EUCON WR 91 above freezing, however, freezing and subsequent thawing will not harm the material if thoroughly agitated.
- Never agitate with air.
- Add to mix independent of other admixtures.
- In all cases, consult the Safety Data Sheet before use.

EUCLID CHEMICAL

Product Certification

The Euclid Chemical Company
19215 Redwood Road
Cleveland, OH 44110-2799
Phone: 800-321-7628
Fax: 216-531-9596
www.euclidchemical.com

Prepared for:
National Ready Mixed Concrete Company
1851 E. Huntington Dr.
Duarte, CA 91010
Project:

5/25/2016

Certification of Eucon WR 91

The Euclid Chemical Company hereby certifies that Eucon WR 91 is a water-reducing, normal-set admixture for concrete that complies with ASTM C-494, Types A & D, as well as AASHTO M-194. Furthermore, it is also certified that Eucon WR 91 does not contain calcium chloride or added chloride ions other than those normally present in water.

For additional information please contact Euclid Chemical Technical Support at (800) 321-7628.

Euclid Chemical
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