



**CONCRETE MIX DESIGN CERTIFICATE**

28054 Payne Rd Corvallis, Oregon 97339

<b>Project:</b> Monroe Library	<b>Mix ID:</b> 62-314561
<b>Contractor:</b> 2G Contractors	<b>Mix Description:</b> 4500 PSI 3/4" NO AIR
<b>Submittal Date:</b> July 6, 2012	<b>Strength Required:</b> 3,000 psi @ 28 Days
<b>Application(s):</b> All Interior 3000 psi applications.	<b>Slump (inch):</b> 3.00 ± 1 <b>Air:</b> 2.0% ± 1.5%

**MIX DESIGN QUANTITIES**

Material / Spec.	Product / Source	SSD Design	Spec Gravity	Absolute Volume (ft <sup>3</sup> )
Cement	Lafarge Richmond Type I,II	512 lb	3.15	2.60
Fly Ash	Boral Boardman Class C	92 lb	2.74	0.54
Water	Well	267 lb	1.00	4.28
Coarse Aggregate	G&W 3/4 - 1/2 Round	682 lb	2.63 *	4.16
Coarse Aggregate	G&W 1/2 - #4 Round	1016 lb	2.60 *	6.26
Fine Aggregate	G&W Concrete Sand	1372 lb	2.56 *	8.59
Water Reducer	Master Builders Pozzoloth 80	30.6 oz **	1.00	0.03
	Air (Entrapped/Entrained)	<u>2.0 % ± 1.5%</u>		<u>0.54</u>
	W/C Ratio: 0.44	Totals	3943 lb/yd <sup>3</sup>	27.00 ft <sup>3</sup>
		Unit Wt	146.0 lb/ft <sup>3</sup>	

**AGGREGATE PROPERTIES**

Material	ODOT ID	SSD Bulk	Absorption	F.M.	Dry Rodded Unit Wt.
G&W 3/4 - 1/2 Round	02-029-2	2.63	2.40		102.6 lb/ft <sup>3</sup>
G&W 1/2 - #4 Round	02-029-2	2.60	2.70		101.9 lb/ft <sup>3</sup>
G&W Concrete Sand	02-029-2	2.56	3.50	2.84	
<i>Coarse and fine aggregate gradations meet ASTM C 33</i>			Combined Averages	2.84	102.2 lb/ft <sup>3</sup>

Comments:

Footnotes: \*SSD Weights and Specific Gravities \*\*Admixture dosage rates will be adjusted according to manufacturers recommendations to accommodate varying field conditions.

**Designed By:** Chris Williams, CCT 42291

**Signature:**



Green and White Rock Products

**Concrete Compressive Performance Summary**

P.O.Box 886 Corvallis Oregon, 97339. 541-757-1877

MIX ID: 314561

MAX	7.00	7330	7880
MIN	3.75	3510	5020
NO.	30	30	30
MEAN	5.25	4630	6310
SD	1.0	768	705
7:28			0.73

DATE YY-MM-DD	PROJECT	TICKET	TEST LAB	SAMPLE	SLMP	7D STR.	28D STR.
2008-05-31		62002862	G&W	GW08021	3.75	5171	7048
2008-12-18		2008810	G&W	08gw107	5.00	5558	6792
2009-02-27		2009770	G&W	09gw019	5.25	4712	6115
2009-10-06	Linn-Benton Community	2014138	FEI	F7275	4.50	4670	6500
2010-01-13	Santiam Christian	62022414	GW	11gw009	5.50	4070	6260
2010-04-16	Western University B	5002510	G&W	10gw053	6.75	4670	5260
2010-04-16	Western University B	65002510	FEI	10FE7618	6.75	3880	5430
2010-04-16	Western University B	65002501	FEI	10FE7617	6.50	4020	5760
2010-04-23	Western University B	62017309	FEI	10FE7632	6.00	5460	7815
2010-06-08	Western University B	2018303	FEI	10FE7706	5.00	7330	6225
2010-09-01	Western University S	62020171	FEI	F7959	7.00	4310	6310
2010-09-02	Santiam Christian	2020208	G&W	10gw103	5.75	3750	5020
2010-10-04	Santiam Christian	62020975	G&W	10gw116	4.75	5240	7070
2010-10-12	Santiam Christian	62021150	G&W	10gw121	4.00	5350	7410
2010-10-25	Western University S	62021456	FEI	F8195	6.00	4770	6650
2010-10-26	Western University S	62021464	G&W	10gw132	6.00	4840	6730
2010-10-26	Western University S	62021464	FEI	F8196	6.25	5210	6565
2010-10-28	Western University S	62021520	FEI	F8207	6.00	4280	6390
2011-01-11	Santiam Christian	62022398	GW	11gw007	6.00	4110	5900
2011-05-10	Good Samaritan Medic	62023609	GW	11gw038	5.00	5500	7880
2011-05-24	Good Samaritan Medic	62023839	FEI	F8602	5.00	4720	6325
2011-07-07	Good Samaritan Medic	62024594	FEI	F8700	6.75	4040	5440
2011-07-20	Good Samaritan Medic	62024838	FEI	F8725	6.00	4310	6410
2011-08-15	Good Samaritan Medic	62025375	FEI	F8800	5.00	3820	5620
2011-08-19	Good Samaritan Medic	62025525	FEI	F8828	4.50	3780	5235
2011-09-23	Good Samaritan Medic	62026451	FEI	F8915	4.25	4630	6390
2011-10-11	Good Samaritan Medic	62026731	FEI	F8953	3.75	4740	6485
2011-11-02	Good Samaritan Medic	62027164	FEI	F8984	5.50	4180	6145
2011-11-16	Good Samaritan Medic	62027395	FEI	F9015	4.00	4310	6085
2011-12-02	Good Samaritan Medic	62027625	FEI	F9047	4.00	3510	5905

## ACI f'cr Calculation Worksheet

Proposed Mix: **314561** Specified Compressive Strength (f'c): **3000**

The test record(s) from the following mix design(s) will be used to calculate the sample standard deviation (s<sub>s</sub>) per ACI 318 R-05 Chapter 5 section 5.3.1\*\*

Mix 1:	<b>314561</b>	Tests	<b>30</b>	Std. Dev.	<b>705</b>
Mix 2:		Tests		Std. Dev.	

Average sample standard deviation (s<sub>s</sub>): 705

With 15 or more test results for the proposed mix design:

Per ACI 318R-05, Chapter 5 table 5.3.1.2,

Modification Factor for sample standard deviation =	1.00
Modified sample standard deviation, s <sub>s</sub> =	705

Per ACI 318R-05, Chapter 5 section 5.3.2:

Eq. 5-1: $f'_{cr} = f'_c + 1.34s_s$ →	<b>3945</b>	psi
Eq. 5-2: $f'_c < 5000$ → $f'_{cr} = f'_c + 2.33s_s - 500$ or,	→	<b>4143</b> psi
$f'_c > 5000$ → $f'_{cr} = 0.90f'_c + 2.33s_s$		

With less than 15 test results for the proposed mix design:

Per ACI 318R-05, Chapter 5 table 5.3.2.2.

$f'_c < 3000$ →	$f'_{cr} = f'_c + 1000$
$f'_c \geq 3000$ , and $\leq 5000$ →	$f'_{cr} = f'_c + 1200$
$f'_c > 5000$ →	$f'_{cr} = 1.10f'_c + 700$

Using the larger of the calculated results per section 5.3.2, or the value from table 5.3.2.2:

Calculated required average strength (f'cr): → **4143 psi**

The strength shown on the mix performance summary is: → **6310 psi**

Mix exceeds required average strength requirements by: **2167 psi**

\*\*Per ACI 318R-05 Chapter 5 section 5.3.1.1 :

- a** - similar materials, quality control and conditions
- b** - within 1,000 psi of concrete specified for job
- c** - 30 consecutive tests or two groups of consecutive tests

**CONCRETE MIX DESIGN CERTIFICATE**

28054 Payne Rd Corvallis, Oregon 97339

<b>Project:</b>	Monroe Library	<b>Mix ID:</b>	62-314565
<b>Contractor:</b>	2G Contractors	<b>Mix Description:</b>	4500 PSI 3/4" EXTERIOR WRA
<b>Submittal Date:</b>	July 6, 2012	<b>Strength Required:</b>	3,000 psi @ 28 Days
<b>Application(s):</b>	All Exterior 3000 psi applications.		<b>Slump (inch):</b> 3.00 ± 1 <b>Air:</b> 2.0% ± 1.5%

**MIX DESIGN QUANTITIES**

Material / Spec.	Product / Source	SSD Design	Spec Gravity	Absolute Volume (ft <sup>3</sup> )
Cement	Lafarge Richmond Type I,II	519 lb	3.15	2.64
Fly Ash	Boral Boardman Class C	92 lb	2.74	0.54
Water	Well	267 lb	1.00	4.28
Coarse Aggregate	G&W 3/4 - 1/2 Round	875 lb	2.63 *	5.33
Coarse Aggregate	G&W 1/2 - #4 Round	650 lb	2.60 *	4.01
Fine Aggregate	G&W Concrete Sand	1453 lb	2.56 *	9.09
Air Entrainment	Master Builders AE 90	2.4 oz **	1.00	0.00
Water Reducer	Master Builders Pozzolith 80	30.5 oz **	1.00	0.03
	Air (Entrapped/Entrained)	<u>4.0 % ± 1.5%</u>		<u>1.08</u>
	W/C Ratio: 0.44	Totals	3858 lb/yd <sup>3</sup>	27.00 ft <sup>3</sup>
		Unit Wt	142.9 lb/ft <sup>3</sup>	

**AGGREGATE PROPERTIES**

Material	ODOT ID	SSD Bulk	Absorption	F.M.	Dry Rodded Unit Wt.
G&W 3/4 - 1/2 Round	02-029-2	2.63	2.40		102.6 lb/ft <sup>3</sup>
G&W 1/2 - #4 Round	02-029-2	2.60	2.70		101.9 lb/ft <sup>3</sup>
G&W Concrete Sand	02-029-2	2.56	3.50	2.84	
<i>Coarse and fine aggregate gradations meet ASTM C 33</i>			Combined Averages	2.84	102.3 lb/ft <sup>3</sup>

Comments:

Footnotes: \*SSD Weights and Specific Gravities \*\*Admixture dosage rates will be adjusted according to manufacturers recommendations to accommodate varying field conditions.

Designed By: Chris Williams, CCT 42291

Signature:



Green and White Rock Products

**Concrete Compressive Performance Summary**

P.O.Box 886 Corvallis Oregon, 97339. 541-757-1877

MIX ID: 314565

MAX	8.00	5630	8055
MIN	2.75	3600	5110
NO.	30	30	30
MEAN	5.00	4660	6290
SD	1.1	559	676
7:28			0.74

DATE YY-MM-DD	PROJECT	TICKET	TEST LAB	SAMPLE	SLMP	7D STR.	28D STR.
2009-04-06		5000406	G&W	09gw035	6.75	4970	5942
2009-04-06		2010306	G&W	09gw036	8.00	4746	6152
2009-04-27		2010646	G&W	09gw045	5.75	5553	7606
2010-01-28	Whitcomb Boat Ramp	2016111	G&W	10gw018	2.75	4380	6133
2010-01-28	Whitcomb Boat Ramp	2016113	G&W	10gw019	3.50	4230	5710
2010-08-17	5th Madison Mose	2019834	G&W	10gw098	4.75	5190	6730
2010-08-18	5th Madison Mose	2019860	G&W	10gw099	3.75	5140	6700
2010-08-26	Wah Chang	2020084	G&W	10gw101	4.25	5630	6300
2010-09-13	Talking Waters	65003108	G&W	10gw105	5.25	3960	5350
2010-10-05	Wah Chang	65003147	G&W	10gw117	5.50	4290	6040
2010-10-08	Wah Chang	62021106	G&W	10gw120	5.50	4380	5860
2010-10-14	Wah Chang	62021234	G&W	10gw124	5.25	4700	6010
2010-10-19	Country Club Drive	62021308	G&W	10gw127	5.50	4610	6100
2010-10-19	Wah Chang	62021327	G&W	10gw129	5.00	5300	6700
2010-10-22	Wah Chang	62021439	G&W	10gw131	5.25	4800	6330
2011-01-24	LBCC / Parking Lot	62022525	GW	11gw014	4.75	4100	5580
2011-01-31	Wah Chang	62022588	GW	11gw017	4.75	4420	6520
2011-02-18	Oregon Freeze Dry / I	62022834	GW	11gw019	5.00	4680	6420
2011-03-14	Wah Chang	62023005	GW	11gw020	4.00	5290	7300
2011-09-01	McHenry Funeral Home	62025852	FEI	F8863	3.75	4980	6615
2011-09-21	Alexander Court	62026352	FEI	F8904	5.25	3600	5110
2011-10-04	Corvallis Sewer Rehal	62026622	FEI	F8925	5.25	3730	5540
2011-10-14	Wah Chang	62026827	GW	11gw066	5.00	4320	5550
2011-12-02	Philomath Wastewater	62027642	GW	11gw073	6.00	4150	6280
2011-12-02	Philomath Wastewater	62027646	FEI	F9050	7.00	4300	6140
2011-12-06	Beca Rain Gardens	62027676	FEI	F9051	5.00	4540	6245
2011-12-08	Beca Rain Gardens	62027714	FEI	F9059	4.75	4050	5780
2012-04-11	Broadway Reservoir	62029080	GW	12gw018	3.25	5620	7560
2012-04-11	Broadway Reservoir	62029080	FEI	F9374	3.25	5450	8055
2012-04-23	Storm Water Retrofit	62029260	GW	12gw019	4.00	4780	6430



Green and White Rock Products

**Concrete Compressive Performance Summary**

P.O.Box 886 Corvallis Oregon, 97339. 541-757-1877

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MAX	8.00	5630	8055
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NO.	30	30	30
MEAN	5.00	4660	6290
SD	1.1	559	676
7:28			0.74

DATE YY-MM-DD	PROJECT	TICKET	TEST LAB	SAMPLE	SLMP	7D STR.	28D STR.
2009-04-06		5000406	G&W	09gw035	6.75	4970	5942
2009-04-06		2010306	G&W	09gw036	8.00	4746	6152
2009-04-27		2010646	G&W	09gw045	5.75	5553	7606
2010-01-28	Whitcomb Boat Ramp	2016111	G&W	10gw018	2.75	4380	6133
2010-01-28	Whitcomb Boat Ramp	2016113	G&W	10gw019	3.50	4230	5710
2010-08-17	5th Madison Mose	2019834	G&W	10gw098	4.75	5190	6730
2010-08-18	5th Madison Mose	2019860	G&W	10gw099	3.75	5140	6700
2010-08-26	Wah Chang	2020084	G&W	10gw101	4.25	5630	6300
2010-09-13	Talking Waters	65003108	G&W	10gw105	5.25	3960	5350
2010-10-05	Wah Chang	65003147	G&W	10gw117	5.50	4290	6040
2010-10-08	Wah Chang	62021106	G&W	10gw120	5.50	4380	5860
2010-10-14	Wah Chang	62021234	G&W	10gw124	5.25	4700	6010
2010-10-19	Country Club Drive	62021308	G&W	10gw127	5.50	4610	6100
2010-10-19	Wah Chang	62021327	G&W	10gw129	5.00	5300	6700
2010-10-22	Wah Chang	62021439	G&W	10gw131	5.25	4800	6330
2011-01-24	LBCC / Parking Lot	62022525	GW	11gw014	4.75	4100	5580
2011-01-31	Wah Chang	62022588	GW	11gw017	4.75	4420	6520
2011-02-18	Oregon Freeze Dry / I	62022834	GW	11gw019	5.00	4680	6420
2011-03-14	Wah Chang	62023005	GW	11gw020	4.00	5290	7300
2011-09-01	McHenry Funeral Home	62025852	FEI	F8863	3.75	4980	6615
2011-09-21	Alexander Court	62026352	FEI	F8904	5.25	3600	5110
2011-10-04	Corvallis Sewer Rehal	62026622	FEI	F8925	5.25	3730	5540
2011-10-14	Wah Chang	62026827	GW	11gw066	5.00	4320	5550
2011-12-02	Philomath Wastewater	62027642	GW	11gw073	6.00	4150	6280
2011-12-02	Philomath Wastewater	62027646	FEI	F9050	7.00	4300	6140
2011-12-06	Beca Rain Gardens	62027676	FEI	F9051	5.00	4540	6245
2011-12-08	Beca Rain Gardens	62027714	FEI	F9059	4.75	4050	5780
2012-04-11	Broadway Reservoir	62029080	GW	12gw018	3.25	5620	7560
2012-04-11	Broadway Reservoir	62029080	FEI	F9374	3.25	5450	8055
2012-04-23	Storm Water Retrofit	62029260	GW	12gw019	4.00	4780	6430

## ACI f'cr Calculation Worksheet

Proposed Mix: **314565** Specified Compressive Strength (f'c): **3000**

The test record(s) from the following mix design(s) will be used to calculate the sample standard deviation (s<sub>s</sub>) per ACI 318 R-05 Chapter 5 section 5.3.1\*\*

Mix 1:	<b>314565</b>	Tests	<b>30</b>	Std. Dev.	<b>676</b>
Mix 2:		Tests		Std. Dev.	

Average sample standard deviation (s<sub>s</sub>): 676

With 15 or more test results for the proposed mix design:

Per ACI 318R-05, Chapter 5 table 5.3.1.2,

Modification Factor for sample standard deviation =	1.00
Modified sample standard deviation, s <sub>s</sub> =	676

Per ACI 318R-05, Chapter 5 section 5.3.2:

Eq. 5-1: $f'_{cr} = f'_c + 1.34s_s$ →	<b>3906</b>	psi
Eq. 5-2: $f'_c < 5000$ → $f'_{cr} = f'_c + 2.33s_s - 500$ or, $f'_c > 5000$ → $f'_{cr} = 0.90f'_c + 2.33s_s$ →	<b>4075</b>	psi

With less than 15 test results for the proposed mix design:

Per ACI 318R-05, Chapter 5 table 5.3.2.2.

$f'_c < 3000$ →	$f'_{cr} = f'_c + 1000$
$f'_c \geq 3000$ , and $\leq 5000$ →	$f'_{cr} = f'_c + 1200$
$f'_c > 5000$ →	$f'_{cr} = 1.10f'_c + 700$

Using the larger of the calculated results per section 5.3.2, or the value from table 5.3.2.2:

Calculated required average strength (f'cr): → **4075 psi**

The strength shown on the mix performance summary is: → **6290 psi**

Mix exceeds required average strength requirements by: **2215 psi**

\*\*Per ACI 318R-05 Chapter 5 section 5.3.1.1 :

- a** - similar materials, quality control and conditions
- b** - within 1,000 psi of concrete specified for job
- c** - 30 consecutive tests or two groups of consecutive tests

## Description

MB-AE 90 air-entraining admixture is for use in concrete mixtures. It meets the requirements of ASTM C 260, AASHTO M 154 and CRD-C 13.

## Applications

Recommended for use in:

- Concrete exposed to cyclic freezing and thawing
- Production of high-quality normal or lightweight concrete (heavyweight concrete normally does not contain entrained air)

# MB-AE™ 90

## Air-Entraining Admixture

### Features

- Ready-to-use in the proper concentration for rapid, accurate dispensing

### Benefits

- Improved resistance to damage from cyclic freezing and thawing
- Improved resistance to scaling from deicing salts
- Improved plasticity and workability
- Reduced permeability – increased watertightness
- Reduced segregation and bleeding

### Performance Characteristics

Concrete durability research has established that the best protection for concrete from the adverse effects of freezing and thawing cycles and deicing salts results from: proper air content in the hardened concrete, a suitable air-void system in terms of bubble size and spacing, and adequate concrete strength, assuming the use of sound aggregates and proper mixing, transporting, placing, consolidation, finishing and curing techniques. MB-AE 90 admixture can be used to obtain adequate freeze-thaw durability in a properly proportioned concrete mixture, if standard industry practices are followed.

**Air Content Determination:** The total air content of normal weight concrete should be measured in strict accordance with ASTM C 231, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method” or ASTM C 173/C 173M, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.”

The air content of lightweight concrete should only be determined using the Volumetric Method. The air content should be verified by calculating the gravimetric air content in accordance with ASTM C 138/C 138M, “Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.” If the total air content, as measured by the Pressure Method or Volumetric Method and as verified by the Gravimetric Method, deviates by more than 1-1/2%, the cause should be determined and corrected through equipment calibration or by whatever process is deemed necessary.

### Guidelines for Use

**Dosage:** There is no standard dosage for MB-AE 90 admixture. The exact quantity of air-entraining admixture needed for a given air content of concrete varies because of differences in concrete-making materials and ambient conditions. Typical factors that might influence the amount of air entrained include: temperature, cementitious materials, sand gradation, sand-aggregate ratio, mixture proportions, slump, means of conveying and placement, consolidation and finishing technique.



## Product Data: MB-AE™ 90

The amount of MB-AE 90 admixture used will depend upon the amount of entrained air required under actual job conditions. In a trial mixture, use 1/4 to 4 fl oz/cwt (16-260 mL/100 kg) of cementitious material. Measure the air content of the trial mixture, and, if needed, either increase or decrease the quantity of MB-AE 90 admixture to obtain the desired air content.

In mixtures containing water-reducing or set-control admixtures, the amount of MB-AE 90 admixture needed may be somewhat less than the amount required in plain concrete.

Due to possible changes in the factors that can affect the dosage of MB-AE 90 admixture, frequent air content checks should be made during the course of the work. Adjustments to the dosage should be based on the amount of entrained air required in the mixture at the point of placement.

If an unusually high or low dosage of MB-AE 90 admixture is required to obtain the desired air content, consult your BASF Construction Chemicals representative. In such cases, it may be necessary to determine that, in addition to a proper air content in the fresh concrete, a suitable air-void system is achieved in the hardened concrete.

**Dispensing and Mixing:** Add MB-AE 90 admixture to the concrete mixture using a dispenser designed for air-entraining admixtures, or add manually using a suitable measuring device that ensures accuracy within plus or minus 3% of the required amount.

For optimum, consistent performance, the air-entraining admixture should be dispensed on damp, fine aggregate. If the concrete mixture contains fine lightweight aggregate, field evaluations should be conducted to determine the best method to dispense the air-entraining admixture.

### Precaution

In a 2005 publication from the Portland Cement Association (PCA R&D Serial No. 2789), it was reported that problematic air-void clustering that can potentially lead to above normal decreases in strength was found to coincide with late additions of water to air-entrained concretes. Late additions of water include the conventional practice of holding back water during batching for addition at the jobsite. Therefore, caution should be exercised with delayed additions of water to air-entrained concrete. Furthermore, an air content check should be performed after any post-batching addition to an air-entrained concrete mixture.

### Product Notes

**Corrosivity – Non-Chloride, Non-Corrosive:** MB-AE 90 admixture will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized floor and roof systems. No calcium chloride or other chloride-based ingredients are used in the manufacture of this admixture.

**Compatibility:** MB-AE 90 admixture may be used in combination with any BASF Construction Chemicals admixture, unless stated otherwise on the data sheet for the other product. When used in conjunction with other admixtures, each admixture must be dispensed separately into the concrete mixture.

### Storage and Handling

**Storage Temperature:** MB-AE 90 admixture should be stored and dispensed at 31 °F (-0.5 °C) or higher. Although freezing does not harm this product, precautions should be taken to protect it from freezing. If MB-AE 90 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

**Shelf Life:** MB-AE 90 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of MB-AE 90 admixture has been exceeded.

**Safety:** Chemical goggles and gloves are recommended when transferring or handling this material.

### Packaging

MB-AE 90 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

### Related Documents

Material Safety Data Sheets: MB-AE 90 admixture.

### Additional Information

For additional information on MB-AE 90 admixture, or its use in developing a concrete mixture with special performance characteristics, contact your BASF Construction Chemicals representative.

*The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.*

**BASF Construction Chemicals, LLC**  
Admixture Systems

[www.masterbuilders.com](http://www.masterbuilders.com)

United States 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 ■ Tel: 800 628-9990 ■ Fax: 216 839-8821  
Canada 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 ■ Tel: 800 387-5862 ■ Fax: 905 792-0651

™BASF Construction Chemicals, LLC

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**Master  
Builders**

## Description

Pozzolith 80 ready-to-use, liquid admixture is used for making more uniform and predictable quality concrete.

Pozzolith 80 admixture meets ASTM C 494/C 494M requirements for Type A, water-reducing, Type B, retarding, and Type D, retarding and water-reducing, admixtures.

## Applications

Recommended for use in:

- Prestressed concrete
- Precast concrete
- Reinforced concrete
- Shotcrete
- Lightweight concrete
- Pumped concrete
- 4x4™ Concrete
- Pervious Concrete
- Rheodynamic® Self-Consolidating Concrete (SCC)

# POZZOLITH® 80

## Water-Reducing Admixture

### Features

- Reduced water content required for a given workability
- Controlled setting characteristics – normal or retarded

### Benefits

- Increased compressive and flexural strength
- Improved workability
- Reduced segregation
- Flexibility in the scheduling of placing and finishing operations
- Offsets effects of early stiffening during extended delays between mixing and placing
- Helps eliminate cold joints
- Dead-load deflection can take place (before concrete sets) in extended pours for bridge decks, cantilevers, nonshored structural elements, etc.
- Peak temperature and/or rate of temperature rise lowered in mass concrete thereby reducing thermal cracking

### Performance Characteristics

**Rate of Hardening:** The temperature of the concrete mixture and the ambient temperature affect the hardening rate of concrete. At higher temperatures, concrete stiffens more rapidly which may cause problems with placing and finishing. The dosage range of Pozzolith 80 admixture can be varied to provide the desired setting characteristics.

### Guidelines for Use

**Dosage:** Depending on the setting characteristics desired, Pozzolith 80 admixture is recommended for use within the dosage range of 3-10 fl oz/cwt (195-650 mL/100 kg) of cementitious materials for most concrete mixtures using average concrete ingredients. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your BASF Construction Chemicals representative.

# Product Data: POZZOLITH® 80

## Product Notes

**Corrosivity – Non-Chloride, Non-Corrosive:** Pozzolith 80 admixture will neither initiate nor promote corrosion of reinforcing steel in concrete. This admixture does not contain intentionally-added calcium chloride or other chloride-based ingredients.

**Compatibility:** Pozzolith 80 admixture may be used in combination with any BASF Construction Chemicals admixtures. When used in conjunction with other admixtures, each admixture must be dispensed separately into the mix.

## Storage and Handling

**Storage Temperature:** If Pozzolith 80 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

**Shelf Life:** Pozzolith 80 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Pozzolith 80 admixture has been exceeded.

## Packaging

Pozzolith 80 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

## Related Documents

Material Safety Data Sheets: Pozzolith 80 admixture.

## Additional Information

For additional information on Pozzolith 80 admixture or its use in developing a concrete mix with special performance characteristics, contact your BASF Construction Chemicals representative.

*The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.*

**BASF Construction Chemicals, LLC**  
Admixture Systems

[www.masterbuilders.com](http://www.masterbuilders.com)

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**Master  
Builders**

# National Ready Mixed Concrete Association



## Certificate of Conformance For Concrete Production Facilities

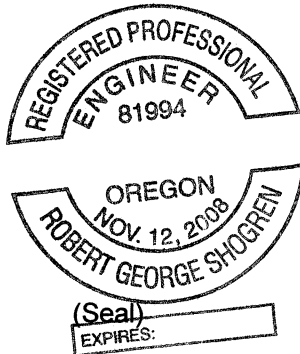
THIS IS TO CERTIFY THAT

*Plant No. 62, Corvallis, OR*

*Green & White Rock Products, Inc.*

has been inspected by the undersigned licensed professional engineer for conformance with the requirements of the *Check List for Ready Mixed Concrete Production Facilities*. As of the inspection date, the facilities met the requirements for production by

***Truck Mixing with Automatic Batching and Recordings of  
Cementitious Materials, Aggregate, Water, and Chemical Admixtures***



Signature of Licensed Professional Engineer

***February 25, 2011***

Inspection Date

***February 25, 2013***

Certification Expiration Date

This company will maintain these facilities in compliance with the *Check List* requirements and will correct promptly any deficiencies which develop.

Signature of Company Official

General Manager

Title of Company Official

**NOTICE:** The Check List indicates only that plant facilities are satisfactory for the production of concrete when properly operated. Conformance of the concrete itself with specification requirements must be verified by usual inspection methods in accordance with sales agreements.

This certificate is issued by the National Ready Mixed Concrete Association on verification that the production facility conforms to the requirements of the NRMCA Certification of Ready Mixed Concrete Production Facilities, QC3. Unauthorized reproduction or misuse of this certificate may result in legal action.

Plant ID #: 826925

Certification ID #: 12793

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**National Ready Mixed Concrete Association 900 Spring Street • Silver Spring • Maryland 20910**