



**AASHTO's
National Transportation
Product Evaluation
Program**

**LABORATORY TESTING OF CONCRETE ADMIXTURES
FINAL REPORT**

**(FALL 2007 AND SPRING 2008
PRODUCT SUBMISSIONS)**



September 2008

American Association of State Highway and Transportation Officials (AASHTO)

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PROLOGUE

General Facts about NTPEP Reports

- ❖ NTPEP Reports contain data collected according to laboratory testing and field evaluation protocols developed through consensus-based decision by the AASHTO's NTPEP Oversight Committee.
- ❖ Products are voluntarily submitted by manufacturers for testing by NTPEP. Testing fees are assessed from manufacturers to reimburse AASHTO member departments for conducting testing and to report results. AASHTO member departments provide a voluntary yearly contribution to support the administrative functions of NTPEP.
- ❖ AASHTO/NTPEP does not endorse any manufacturer's product over another. Use of certain proprietary products as "test control specimens" does not constitute endorsement of those products.
- ❖ AASHTO/NTPEP does not issue product approval or disapproval; rather, test data is furnished for the User to make judgment for product prequalification or approval for their transportation agency.

Guidelines for Proper Use of NTPEP Results

- ❖ The User is urged to carefully read any introductory notes at the beginning of this Report. Also, to consider any special clauses, footnotes or conditions which may apply to any test reported herein. Any of these notes may be relevant to the proper use of NTPEP test data.
- ❖ The User of this Report must be sufficiently familiar with the product performance requirements and/or (standard) specification of their agency in order to determine which test data is relevant to meeting those qualifying factors.
- ❖ NTPEP test data is intended to be predictive of actual product performance. Where a transportation agency has successful historical experience with a given product it is suggested to factor that precedence in granting or withholding product approval or prequalification.

NTPEP Report Special Advisory for Concrete Admixtures (CADD)

- ❖ For transportation agencies who desire to have *temporary Liquid Chemical Admixtures for Concrete* periodically resubmitted for NTPEP evaluation, the CADD Project Panel recommends a retest period of 5 years.
- ❖ The User is urged to establish QC/QA protocols for project-level acceptance of products. This NTPEP report is useful only for expediting product prequalification and does not take the place of a managed QC/QA program.
- ❖ For specific questions regarding this NTPEP Report or for advice on how to implement NTPEP data furnished in this Report the User is encouraged to contact the NTPEP Coordinator at (202) 624-3695 for a listing of NTPEP Lead States.

Todd Bennett (MO)
Chairman, CADD Project Panel

David Iverson (MN)
Vice Chairman, CADD Project Panel

2008 NTPEP Report Series

**National Transportation Product
Evaluation Program (NTPEP)**

NTPEP Report 13003.2

Report of

LABORATORY TESTING OF CONCRETE ADMIXTURES

**(FALL 2007 AND SPRING 2008
PRODUCT SUBMISSIONS)**

Report by:

Missouri Department of Transportation

Testing by:

Minnesota Department of Transportation



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Introduction

The National Transportation Product Evaluation Program (NTPEP) was developed in order to evaluate a variety of traffic, construction, and maintenance products. This report provides information on the evaluation of concrete admixtures submitted by manufactures in the fall of 2007.

Objective

The objective of NTPEP is to combine and focus the resources of the participating NTPEP member departments in the evaluation of material of common interest in order to improve cost-effectiveness. This report provides the NTPEP member departments the necessary information to evaluate concrete admixtures without the investment of their time and manpower for testing. In keeping with NTPEP philosophy of purely testing materials, no conclusions are given in this report. The data in this report is left up to each member department to evaluate. Minnesota Department of Transportation (Mn/DOT) conducted the laboratory testing.

Scope

This report contains the laboratory test results and data accumulated during the NTPEP Test Facility's study of concrete admixtures submitted in the fall of 2007.

Background

The concrete admixture manufacturers submitted Product Evaluation Forms (PEF) to the NTPEP Coordinator. The NTPEP Coordinator assigned each material a number (CADD 2007-08-xx). The PEF's were forwarded to Mn/DOT where the testing was conducted on the submitted products.

Concrete Admixtures Submitted

NTPEP Number	Manufacturer	Product Name
CADD (2007)-08-01	W.R. GRACE	Polar Set
CADD (2007)-08-02	W.R. GRACE	Lubricon NCA
CADD (2007)-08-03	W.R. GRACE	Recover
CADD (2007)-08-04	W.R. GRACE	Daracem 55*
CADD (2007)-08-05	W.R. GRACE	Daracem 65
CADD (2007)-08-06	W.R. GRACE	ADVA 170
CADD (2007)-08-07	W.R. GRACE	EXP 950
CADD (2007)-08-08	W.R. GRACE	DCI S
CADD (2007)-08-09	W.R. GRACE	WRDA w/Hycol*
CADD (2007)-08-10	W.R. GRACE	WRDA 20
CADD (2007)-08-11	BASF	Glenium 7500

CADD (2007)-08-12	BASF	Glenium 7700
CADD (2007)-08-13	BASF	Glenium 7101
CADD (2007)-08-14	BASF	PS 1473(Navitas 33)

Vendor Addresses

CADD (2007) 08- 01 thru 10 W.R. GRACE
62 Whittemore Ave
Cambridge, Ma 02140

CADD (2007) 08-11 thru 14 BASF Constuction Chemicals, LLC
23700 Chargrin Boulevard
Cleveland, OH 44122

Test Data

Product Name	NTPEP #	MFG	pH	Sp. Gravity @25°C	% Solids M-194
Polar Set	CADD(2007)-08-01	W.R. GRACE	8.40	1.355	43.85
Lubricon NCA	CADD(2007)-08-02	W.R. GRACE	6.84	1.395	49.81
Recover	CADD(2007)-08-03	W.R. GRACE	7.40	1.120	22.08
Daracem 55	CADD(2007)-08-04	W.R. GRACE	*	*	*
Daracem 65	CADD(2007)-08-05	W.R. GRACE	8.72	1.156	33.18
ADVA 170	CADD(2007)-08-06	W.R. GRACE	4.17	1.078	29.13
EXP 950	CADD(2007)-08-07	W.R. GRACE	5.64	1.076	38.67
DCI S	CADD(2007)-08-08	W.R. GRACE	7.64	1.302	35.50
WRDA w/ Hycol	CADD(2007)-08-09	W.R. GRACE	*	*	*
WRDA 20	CADD(2007)-08-10	W.R. GRACE	8.49	1.196	47.63
Glenium 7500	CADD(2007)-08-11	BASF	4.71	1.051	25.65
Glenium 7700	CADD(2007)-08-12	BASF	5.35	1.076	36.35
Glenium 7101	CADD(2007)-08-13	BASF	5.45	1.064	31.34
PS 1473(Navitas 33)	CADD(2007)-0808-14	BASF	6.95	1.004	3.08

% Solids were determined for all products by AASHTO M-194.

Introduction

The National Transportation Product Evaluation Program (NTPEP) was developed in order to evaluate a variety of traffic, construction, and maintenance products. This report provides information on the evaluation of concrete admixtures submitted by manufactures in the spring of 2008.

Objective

The objective of NTPEP is to combine and focus the resources of the participating NTPEP member departments in the evaluation of material of common interest in order to improve cost-effectiveness. This report provides the NTPEP member departments the necessary information to evaluate concrete admixtures without the investment of their time and manpower for testing. In keeping with NTPEP philosophy of purely testing materials, no conclusions are given in this report. The data in this report is left up to each member department to evaluate. Minnesota Department of Transportation (Mn/DOT) conducted the laboratory testing.

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Concrete Admixtures Submitted

NTPEP Number	Manufacturer	Product Name
CADD (2008)-01	SIKA	AEA-15
CADD (2008)-02	SIKA	Sika Control 40
CADD (2008)-03	SIKA	Sika Viscocrete 4100
CADD (2008)-04	W.R. Grace	DCI
CADD (2008)-05	W.R. Grace	WRDA-27
CADD (2008)-06	W.R. Grace	Daravair AT30
CADD (2008)-07	W.R. Grace	Daravair AT60
CADD (2008)-08	W.R. Grace	ADVA CAST 555
CADD (2008)-09	Euclid	Accelguard 80
CADD (2008)-10	Euclid	Air Mix 200
CADD (2008)-11	Euclid	Air Mix 250
CADD (2008)-12	Euclid	Eucon CIA

CADD (2008)-13	Euclid	Eucon MR
CADD (2008)-14	Euclid	Eucon Retarder 75
CADD (2008)-15	Euclid	Eucon WR-91
CADD (2008)-16	Euclid	Plastol 341S

Vendor Addresses

CADD (2008) 01 thru 03 Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071

CADD (2008) 04 thru 08 W.R. GRACE
62 Whittemore Ave
Cambridge, Ma 02140

CADD (2008) 08 thru 16 The Euclid Chemical Company
19320 Redwood Road
Cleveland, OH 44110

Test Data


Product Name	NTPEP #	MFG	pH	Sp. Gravity @25°C	% Solids M-194
Sika Control 40	CADD (2008)-02	SIKA	11.02	1.002	0.12
Sika Viscocrete 4100	CADD (2008)-03	SIKA	4.33	1.081	35.11
DCI	CADD (2008)-04	W.R. Grace	*	*	*
WRDA-27	CADD (2008)-05	W.R. Grace	*	*	*
ADVA CAST 555	CADD (2008)-08	W.R. Grace	4.01	1.053	16.62
Accelguard 80	CADD (2008)-09	Euclid	5.28	1.404	52.79
Eucon CIA	CADD (2008)-12	Euclid	8.31	1.286	33.23
Eucon MR	CADD (2008)-13	Euclid	6.19	1.275	43.80
Eucon Retarder 75	CADD (2008)-14	Euclid	4.70	1.178	33.14
Eucon WR-91	CADD (2008)-15	Euclid	5.39	1.192	40.09
Plastol 341S	CADD (2008)-16	Euclid	5.77	1.044	19.83


% Solids were determined for all products by AASHTO M-194.

*** Indicates that data was withdrawn at manufactures request.**

Product Name	NTPEP #	MFG	pH	Sp. Gravity @25°C	% Solids M-154
AEA-15	CADD (2008)-01	SIKA	12.95	1.002	15.78
Daravair AT30	CADD (2008)-06	W.R. Grace	9.71	1.014	10.47
Daravair AT60	CADD (2008)-07	W.R. Grace	10.65	1.028	19.58
Air Mix 200	CADD (2008)-10	Euclid	11.34	1.015	15.09
Air Mix 250	CADD (2008)-11	Euclid	11.21	1.008	7.76

% Solids were determined for all products by AASHTO M-154.



“The National Transportation Product Evaluation Program (NTPEP) was established by the American Association of State Highway and Transportation Officials (AASHTO) in early 1994. The program pools the professional and physical resources of the AASHTO member departments in order to test materials, products and devices of common interest. The primary goals of the program are to provide cost-effective evaluations for the states by eliminating duplication of routine testing by the states; and to reduce duplication of effort by the manufacturers who produce and market commonly used proprietary, engineered products.” 

-- Rick Smutzer (IN), former NTPEP Chairman



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