



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

**LABORATORY TESTING OF CONCRETE ADMIXTURES  
FINAL REPORT**

**(SPRING 2006, FALL 2006, SPRING 2007  
PRODUCT SUBMISSIONS)**  
**REVISED**



**February 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 13003.1**

Report of

#### **LABORATORY TESTING OF CONCRETE ADMIXTURES**

#### **(SPRING 2006, FALL 2006, SPRING 2007 PRODUCT SUBMISSIONS-REVISED)**

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 Spring 2006.

## **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 2006.

## **Background**

The concrete admixture manufacturers submitted Product Evaluation Forms (PEF) to the NTPEP Manager. The NTPEP Manager assigned each material a number (CADD 06-xx). The PEF's were forwarded to Mn/DOT where the testing was conducted on the submitted products.

## **Concrete Admixtures Submitted**

<b>NTPEP Number</b>	<b>Manufacturer</b>	<b>Product Name</b>
CADD 06-01	Cortec	MCI-2005
CADD 06-02	Cortec	MCI-2005 NS
CADD 06-03	Cortec	MCI-2007 Liquid Super Corr
CADD 06-04	Sika	Sika Air
CADD 06-05	Sika	Sika ViscoCrete 2100
CADD 06-06	Sika	Plastiment
CADD 06-07	Sika	Plastocrete 1161
CADD 06-08	Sika	Sika Set NC
CADD 06-09	BASF	Pozzolith 100XR
CADD 06-10	BASF	Micro-Air
CADD 06-11	BASF	MBAE-90

CADD 06-12	BASF	Glenium 3400 NV
CADD 06-13	BASF	Glenium 3030 NS
CADD 06-14	BASF	Rheocrete CNI
CADD 06-15	BASF	Pozzutec 20+
CADD 06-16	BASF	Pozzolith 200 N
CADD 06-17	BASF	PS 1466
CADD 04-01	Master Builders	Polyheed 1020
CADD 04-02	Master Builders	Polyheed 1025
CADD 04-03	Axim Italcementi Group	Catexol 800N
CADD 04-04	Axim Italcementi Group	Catexol 900N
CADD 04-05	Axim Italcementi Group	Catexol 1000N
CADD 04-06	Axim Italcementi Group	Catexol 2000N
CADD 04-07	Axim Italcementi Group	Catexol 3500N
CADD 04-08	Axim Italcementi Group	Catexol 1000 SP-MN
CADD 04-09	Axim Italcementi Group	Catexol 1000 SP-M
CADD 04-10	Axim Italcementi Group	Catexol 3000 GP
CADD 04-11	Axim Italcementi Group	Superflux 2000 PC
CADD 04-12	Axim Italcementi Group	Catexol CN-CI
CADD 04-13	Axim Italcementi Group	Catexol AE 260
CADD 04-14	Axim Italcementi Group	Catexol AE360
CADD 04-15	Axim Italcementi Group	Catexol 1000 R
CADD 04-16	Axim Italcementi Group	Catexol 2000 RHE
CADD 04-17	Axim Italcementi Group	Stop-Set L

**Vendor Addresses**

CADD 06-(01-03) Cortec Corporation  
4119 White Bear Parkway  
St. Paul, MN 55110

CADD 06-(04-08) Sika Set NC  
201 Polito Avenue  
Lyndhurst, NJ 07071

CADD 06-(09-17) BASF Admixtures, Inc (formerly Degussa Admixtures Inc.)  
23700 Chagrin Boulevard  
Cleveland, OH 44122

CADD 04-(01&02) Master Builders  
23700 Chagrin Boulevard  
Cleveland, OH 44122

CADD 04-(03-17) Axim Italcementi Group  
8282 Middlebranch Road  
Middlebranch, OH 44652

## **Test Data**

<b>Product Name</b>	<b>NTPEP #</b>	<b>MFG</b>	<b>pH</b>	<b>Sp. Gravity @25°C</b>	<b>% Solids M-194</b>
MCI-2005	CADD 06-01	Cortec	8.75	1.075	39.98
MCI-2005 NS	CADD 06-02	Cortec	13.70	1.075	27.57
MCI-2007 Liquid Super Corr	CADD 06-03	Cortec	8.79	1.203	45.24
Sika Air	CADD 06-04	Sika	12.58	1.205	6.09
Sika ViscoCrete 2100	CADD 06-05	Sika	4.12	1.080	35.95
Plastiment	CADD 06-06	Sika	10.16	1.280	31.80
Plastocrete 1161	CADD 06-07	Sika	6.23	1.280	33.69
Sika Set NC	CADD 06-08	Sika	6.38	1.355	44.70
Pozzolith 100XR	CADD 06-09	BASF	8.46	1.208	46.21
Micro-Air	CADD 06-10	BASF	12.01	1.015	12.41
MBAE-90	CADD 06-11	BASF	11.13	1.020	5.70
Glenium 3400 NV	CADD 06-12	BASF	9.37	1.110	42.30
Glenium 3030 NS	CADD 06-13	BASF	7.20	1.050	19.80
Rheocrete CNI	CADD 06-14	BASF	10.16	1.290	33.62
Pozzutec 20+	CADD 06-15	BASF	5.33	1.353	46.48
Pozzolith 200 N	CADD 06-16	BASF	10.28	1.135	33.08
PS 1466	CADD 06-17	BASF	6.51	1.115	44.46
Polyheed 1020	CADD 04-01	MB	4.88	1.075	22.86
Polyheed 1025	CADD 04-02	MB	4.80	1.075	24.71
Catexol 800N	CADD 04-03*	AXIM	-	-	-
Catexol 900N	CADD 04-04*	AXIM	-	-	-
Catexol 1000N	CADD 04-05*	AXIM	-	-	-
Catexol 2000Ni	CADD 04-06*	AXIM	-	-	-
Catexol 3500N	CADD 04-07*	AXIM	-	-	-
Catexol 1000 SP-MN	CADD 04-08	AXIM	9.33	1.190	37.95
Catexol 1000 SP-M 40	CADD 04-09*	AXIM	-	-	-
Catexol 3000 GP	CADD 04-10*	AXIM	-	-	-
Superflux 2000 PC	CADD 04-11	AXIM	6.20	1.100	39.74
Catexol CN-Cl	CADD 04-12*	AXIM	-	-	-
Catexol AE 260	CADD 04-13*	AXIM	-	-	-
Catexol AE 360	CADD 04-14	AXIM	8.28	1.015	6.56
Catexol 1000 R	CADD 04-15*	AXIM	-	-	-
Catexol 2000 RHE	CADD 04-16*	AXIM	-	-	-
Stop-Set L	CADD 04-17*	AXIM	-	-	-

\*Product Withdrawn

**Test Data Continued**

<b>Product Name</b>	<b>NTPEP #</b>	<b>MFG</b>	<b>pH</b>	<b>Sp. Gravity @25°C</b>	<b>% Solids M-157</b>
Sika Air	CADD 06-04	Sika	12.58	1.205	6.30
Micro-Air	CADD 06-10	BASF	12.01	1.015	12.38
MBAE-90	CADD 06-11	BASF	11.13	1.020	6.79

**% Solids were determined for all products by AASHTO M-194. In addition, Air-Entraining Admixtures were also tested according to AASHTO M-157.**

## **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 Fall 2006.

## **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 2006 Fall Cycle.

## **Background**

The concrete admixture manufacturers submitted Product Evaluation Forms (PEF) to the NTPEP Coordinator. The NTPEP Coordinator assigned each material a number (CADD 2006-08-xx). The PEF's were forwarded to Mn/DOT where the testing was conducted on the submitted products.

## **Concrete Admixtures Submitted**

<b>NTPEP Number</b>	<b>Manufacturer</b>	<b>Product Name</b>
CADD (2006)-08-01	Sika	Sika CNI
CADD (2006)-08-02	Sika	Sikament AFM
CADD (2006)-08-03	Sika	Sikament 686
CADD (2006)-08-04	Sika	Sika Rapid-1
CADD (2006)-08-05	Sika	Sika Stabilizer 300SC
CADD (2006)-08-06	Sika	Sikacrete 950DP
CADD (2006)-08-07	Sika	Sika AEA-14
CADD (2006)-08-08	Sika	Sika Viscocrete 6100
CADD (2006)-08-09	BASF	Rheomac VMA 358
CADD (2006)-08-10	BASF	Rheomac UW 450
CADD (2006)-08-11	BASF	Rheomac VMA 362

CADD (2006)-08-12	BASF	Rheobuild 1000
CADD (2006)-08-13	BASF	Pozzolith NC 534
CADD (2006)-08-14	BASF	Polyheed 997
CADD (2006)-08-15	Sika	Sika Plastocrete 161

### Vendor Addresses

CADD (2006) 08-01 thru 06, 15      Sika Corporation  
201 Polito Avenue  
Lyndhurst, NJ 07071

08-09 thru 14      BASF Construction Chemicals, LLC (*previously  
BASF Admixtures, Degussa Admixtures, Master  
Builders*)  
23700 Chargin Boulevard  
Cleveland, OH 44122

### Test Data

Product Name	NTPEP #	MFG	pH	Sp. Gravity @25°C	% Solids M-194
Sika CNI	CADD (2006)- 08-01	Sika	9.40	1.293	34.31
Sikament AFM	CADD (2006)- 08-02	Sika	5.09	1.032	12.99
Sikament 686	CADD (2006)- 08-03	Sika	6.23	1.052	22.19
Sika Rapid-1	CADD (2006)- 08-04	Sika	8.89	1.178	33.61
Sika Stabilizer 300SC	CADD (2006)- 08-05	Sika	7.56	1.255	42.47
Sikacrete 950DP	CADD (2006)- 08-06	Sika	*	*	*
Sika Viscocrete 6100	CADD (2006)- 08-08	Sika	4.41	1.087	33.10
Rheomac VMA 358	CADD (2006)- 08-09	BASF	9.68	1.013	4.20
Rheomac UW 450	CADD (2006)- 08-10	BASF	6.91	N/D	40.41
Rheomac VMA 362	CADD (2006)- 08-11	BASF	7.64	N/D	1.26

Rheobuild 1000	CADD (2006)- 08-12	BASF	6.71	1.197	39.38
Pozzolith NC 534	CADD (2006)- 08-13	BASF	7.92	1.394	46.80
Polyheed 997	CADD (2006)- 08-14	BASF	9.11	1.276	46.60
Sika Plastocrete 161	CADD (2006)- 08-15	Sika	7.98	1.174	34.99

**\* CADD (2006)-08-07 is a solid admixture and no tests could be done.**

<b>Product Name</b>	<b>NTPEP #</b>	<b>MFG</b>	<b>pH</b>	<b>Sp. Gravity @25°C</b>	<b>% Solids M-157</b>
Sika AEA-14	CADD (2006)- 08-07	Sika	12.89	1.011	8.05

**% Solids were determined for all products by AASHTO M-194. In addition, Air-Entraining Admixtures were also tested according to AASHTO M-157.**



## **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 Spring 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 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-xx). The PEF's were forwarded to Mn/DOT where the testing was conducted on the submitted products.

## **Concrete Admixtures Submitted**

<b>NTPEP Number</b>	<b>Manufacturer</b>	<b>Product Name</b>
CADD (2007)-01	W.R. GRACE	ADVA 190
CADD (2007)-02	W.R. GRACE	ADVA Cast 575
CADD (2007)-03	W.R. GRACE	Darex II AEA
CADD (2007)-04	W.R. GRACE	Daravair 1000
CADD (2007)-05	W.R. GRACE	Daratard 17
CADD (2007)-06	W.R. GRACE	ADVA 140M

**Vendor Addresses**

CADD (2007) 01 thru 06      W.R. GRACE  
62 Whittemore Ave  
Cambridge, Ma 02140

**Test Data**



<b>Product Name</b>	<b>NTPEP #</b>	<b>MFG</b>	<b>pH</b>	<b>Sp. Gravity @25°C</b>	<b>% Solids M-194</b>
ADVA 190	CADD(2007)-01	W.R. GRACE	4.74	1.086	32.40
ADVA Cast 575	CADD(2007)-02	W.R. GRACE	5.51	1.080	39.31
Daratard 17	CADD(2007)-05	W.R. GRACE	6.88	1.231	47.19
ADVA 140M	CADD(2007)-06	W.R. GRACE	4.79	1.040	14.88

<b>Product Name</b>	<b>NTPEP #</b>	<b>MFG</b>	<b>pH</b>	<b>Sp. Gravity @25°C</b>	<b>% Solids M-154</b>
Darex II AEA	CADD(2007)-03	W.R. GRACE	9.56	1.011	10.88
Daravair 1000	CADD(2007)-04	W.R. GRACE	10.19	1.013	5.27

**% Solids were determined for all products by AASHTO M-194. In addition, Air-Entraining Admixtures were also tested according to AASHTO M-154.**



[REDACTED]

“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.”  **NTPEP** 

-- William Temple (LA), NTPEP Chairman

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