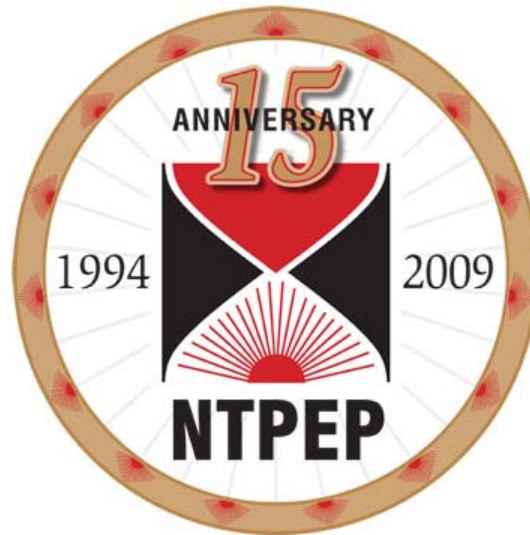


2009 NTPEP Report Series

NTPEP Report 13004.1



LABORATORY TESTING OF CONCRETE ADMIXTURES
FINAL REPORT

(FALL 2008 PRODUCT SUBMISSIONS)



March 2009

American Association of State Highway and Transportation Officials (AASHTO)

Executive Office: 444 North Capitol Street, NW, Suite 249 • Washington, DC • 20001
(t) 202.624.5800 • (f) 202.624.5806 • www.transportation.org

DOWNLOAD DATA FILES FOR THIS NTPEP REPORT @ NTPEP.org

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 *Liquid Chemical Admixtures for Concrete* periodically resubmitted for NTPEP evaluation, the CADD Technical Committee 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) 624-7830.

Todd Bennett (MO)
Chairman, CADD Project Panel

David Iverson (MN)
Vice Chairman, CADD Project Panel

2009 NTPEP Report Series

National Transportation Product Evaluation Program (NTPEP)

NTPEP Report 13004.1

Report of

LABORATORY TESTING OF CONCRETE ADMIXTURES

(FALL 2008 PRODUCT SUBMISSIONS)

Report by:

Missouri Department of Transportation

Testing by:

Minnesota Department of Transportation



© Copyright 2009, by the American Association of State Highway and Transportation Officials (AASHTO). *All Rights Reserved.* Printed in the United States of America. This book or parts thereof, may not be reproduced without express written permission of the publisher. The report does not constitute an endorsement by AASHTO of the products contained herein. This report provides an original source of technical information to facilitate development of acceptability standards and is primarily intended for use by state and local transportation agencies.

National Transportation Product Evaluation Program (NTPEP)

Chair: William H. Temple, Louisiana

Vice Chair: Thomas E. Baker, Washington

AASHTO Staff: Keith Platte, Greta Smith, Claire Kim, and Henry Lacinak

NTPEP Committee

Member Department	Member/Delegate	Phone Number	Fax Number	Email Address
Alabama	Lynn Wolfe, P.E.	(334) 206-2335	(334) 834-5799	wolfel@dot.state.al.us
Alaska	Michael San Angelo	(907) 269-6234		michael_sanangelo@dot.state.ak.us
Arizona	Frank T. Darmiento, P.E.	(602) 712-3134	(602) 712-3400	fdarmiento@azdot.gov
Arkansas	Mark Bradley	(501) 569-2380	(501) 569-2070	mark.bradley@arkansashighways.com
	Michael Benson	(501) 569-2185		michael.benson@arkansashighways.com
	Tony Sullivan	(501) 569-2661	(501) 569-2014	tony.sullivan@arkansashighways.com
California	Peter Vacura	(916) 227-7285	(916) 227-7075	Peter_Vacura@dot.ca.gov
Colorado	David Kotzer	(303) 398-6566	(303) 398-6504	david.kotzer@dot.state.co.us
	K.C. Matthews	(303) 757-9543	(303) 757-9439	K.C.Matthews@dot.state.co.us
Connecticut	Andrew J. Mroczkowski	(860) 258-0304	(860) 258-0399	andrew.mroczkowski@po.state.ct.us
	James M. Sime, P.E.	(860) 258-0309	(860) 258-0399	james.sime@po.state.ct.us
Delaware	James T. Pappas III, P.E.	(302) 760-2400	(302) 739-5270	jpappas@mail.dot.state.de.us
	Teresa Gardner	(302) 760-2515	(302) 739-8282	teresagardner@state.de.us
District of Columbia	Rezene Medhani	(202) 673-2155		Rezene.Medhani@dc.gov
	William P. Carr	(202) 671-1371	(202) 671-0617	williamp.carr@dc.gov
Florida	Karen Byram	(850) 414-4353	(850) 414-4199	karen.byram@dot.state.fl.us
	Paul Vinik	(352) 955-6649	(352) 955-6644	Paul.Vinik@dot.state.fl.us

(updates found at www.ntpep.org)

NTPEP Committee

Member	Department	Member/Delegate	Phone Number	Fax Number	Email Address
--------	------------	-----------------	--------------	------------	---------------

Georgia

		Brad Young	(404) 363-7560		byoung@dot.ga.gov
		Don Wishon	(404) 363-7632	(404) 363-7632	donald.wishon@dot.state.ga.us
		Richard Douds	(404) 362-2545	(404) 363-7588	Richard.Douds@dot.ga.gov

Idaho

		Stephen B. Loop	(208) 334-8267	(208) 334-4411	steve.loop@itd.idaho.gov
--	--	-----------------	----------------	----------------	--------------------------

Indiana

		Kenny Anderson	(317) 610-7251		kbanderson@indot.in.gov
		Ronald P. Walker	(317) 610-7251	(317) 356-9351	rwalker@indot.state.in.us

Iowa

		Joseph Putherickal	(515) 239-1259	(515) 239-1092	joseph.putherickal@dot.iowa.gov
		Kurtis Younkin	(515) 239-1184	(515) 239-1891	kurtis.younkin@dot.iowa.gov

Kansas

		Curt Niehaus	(785) 296-3899	(785) 296-6665	curt@ksdot.org
		David Meggers, PE	(785) 291-3845	(785) 296-2526	dmeggers@ksdot.org

Kentucky

		Derrick Castle	(502) 564-3160	(502) 564-7034	derrick.castle@ky.gov
		Ross Mills	(502) 564-3160	(502) 564-7034	ross.mills@ky.gov

Louisiana

		Jason Davis	(225) 248-4131	(225) 248-4187	jasondavis@dotd.louisiana.gov
		Luanna Cambass	(225) 248-4131	(225) 248-4187	LuannaCambas@dotd.louisiana.gov

Maine

		Doug Gayne	(207) 624-3268	(207) 624-3301	doug.gayne@maine.gov
--	--	------------	----------------	----------------	----------------------

Maryland

		Dan Sajedi	(443) 572-5162		dsajedi@sha.state.md.us
		Gil Rushton	(443) 572-5293	(410) 321-3099	grushton@sha.state.md.us
		Russell A. Yurek	(410) 582-5505	(410) 582-9861	ryurek@sha.state.md.us

Massachusetts

		Ed Mirka	(617) 951-1348		Ed.Mirka@MHD.state.ma.us
		John Grieco	(617) 951-0596		John.Grieco@MHD.state.ma.us

Michigan

		John Staton, P.E.	(517) 322-5701	(517) 322-1262	staton@michigan.gov
--	--	-------------------	----------------	----------------	---------------------

(updates found at www.ntpep.org)

NTPEP Committee

Member	Department	Member/Delegate	Phone Number	Fax Number	Email Address
--------	------------	-----------------	--------------	------------	---------------

Minnesota

		David Iverson	(651) 366-5550	(651) 366-5515	david.iverson@dot.state.mn.us
		James McGraw	(651) 366-5548	(651) 366-5515	james.mcgraw@dot.state.mn.us

Mississippi

		Celina Sumrall	(601) 359-7001	(601) 359-1716	csumrall@mdot.state.ms.us
		John D. Vance	(601) 359-7111	(601) 359-7126	jvance@mdot.state.ms.us
		John J. Smith	(601) 359-1454	(601) 359-5918	jjsmith@mdot.state.ms.us

Missouri

		Julie Weiland	(573) 751-2487	(573) 526-4361	julie.weiland@modot.mo.gov
--	--	---------------	----------------	----------------	----------------------------

Montana

		Anson Moffett, P.E.	(406) 444-5407		amoffett@mt.gov
		Craig Abernathy	(406) 444-6269	(406) 444-6204	cabernathy@state.mt.us
		Ross Metcalfe, P.E.	(406) 444-9201		rmetcalfe@mt.gov

Nebraska

		Mostafa Jamshidi	(402) 479-4750	(402) 479-3975	mjamshid@dor.state.ne.us
		Omar Qudus	(402) 479-4394	(402) 479-3975	oqudus@dor.state.ne.us

Nevada

		Jason Vanhavel	(775) 888-7567	(775) 888-7077	jvanhavel@dot.state.nv.us
		Roma Clewell	(775) 888-7894	(775) 888-7230	RClewell@dot.state.nv.us

New Hampshire

		Alan D. Rawson	(603) 271-3151	(603) 271-8700	arawson@dot.state.nh.us
		William Real	(603) 271-3151	(603) 271-8700	wreal@dot.state.nh.us

New Jersey

		Richard Jaffe	(609) 530-5463	(609) 530-3790	richard.jaffe@dot.state.nj.us
--	--	---------------	----------------	----------------	-------------------------------

New Mexico

		Ernest D. Archuleta	(505) 827-5525	(505) 827-3202	ernest.archuleta@nmshtd.state.nm.us
--	--	---------------------	----------------	----------------	-------------------------------------

New York

		Jim Curtis	(518) 457-4735	(518) 457-8080	Jcurtis@dot.state.ny.us
		Michael Stelzer	(518) 457-4595	(518) 457-8171	mstelzer@dot.state.ny.us
		Patrick Galarza	(518) 457-4599		pgalarza@dot.state.ny.us

NTPEP Committee

Member Department	Member/Delegate	Phone Number	Fax Number	Email Address
North Carolina				
	Chris Peoples	(919) 733-3532		cpeoples@ncdot.gov
	Jack E. Cowsert	(919) 733-7088	(919) 773-8472	jcowsert@dot.state.nc.us
	Ron King, P.E.			ronking@dot.state.nc.us
North Dakota				
	Ron Horner	(701) 328-6904	(701) 328-6913	rhorner@nd.us
Ohio				
	Brad Young	(614) 351-2882	(614) 275-1354	brad.young2@dot.state.oh.us
	Lloyd M. Welker Jr.	(614) 275-1351	(614) 275-1354	lloyd.welker@dot.state.oh.us
Oklahoma				
	Kenny R. Seward	(405) 521-4999	(405) 522-0552	kseward@odot.org
	Reynolds H. Toney	(405) 521-2677	(405) 522-0552	rtoney@odot.org
Oregon				
	Ivan Silbernagel, PE	(503) 986-6213	(503) 983-3096	Ivan.p.silbernagel@state.or.us
	Mike Dunning	(503) 986-3059	(503) 986-3096	mike.d.dunning@state.or.us
Pennsylvania				
	David H. Kuniega	(717) 787-3966	(717) 783-5955	dkuniega@state.pa.us
	Tim Ramirez	(717) 783-6714	(717) 783-5955	tramirez@state.pa.us
Puerto Rico				
	Orlando Diaz-Quirindong	(787) 729-1592	(787) 721-3245	oquirindongo@act.dtop.gov.pr
Rhode Island				
	Colin A. Franco, P.E.	(401) 222-3030		cfranco@dot.ri.gov
	Deborah Munroe	(401) 222-303	(401) 222-4573	dmunroe@dot.ri.gov
	Mark F. Felag, P.E.	(401) 222-2524		mfelag@dot.ri.gov
South Carolina				
	Merrill Zwanka, P.E.	(803) 737-6681		ZwankaME@dot.state.sc.us
	Terry Rawls	(803) 737-1498	(803) 737-0271	rawlstl@dot.state.sc.us
South Dakota				
	David L. Huft	(605) 773-3292	(605) 773-4713	dave.huft@state.sd.us
	Jason Humphrey	(605) 773-3704	(605) 773-6600	jason.humphrey@state.sd.us
	Joe J. Feller	(605) 773-3401	(605) 773-5867	joe.feller@state.sd.us

NTPEP Committee

Member	Department	Member/Delegate	Phone Number	Fax Number	Email Address
Tennessee					
		Danny Lane	(615) 350-4175	(615) 350-4128	danny.lane@state.tn.us
		Heather Hall	(615) 350-4150	(615) 350-4128	heather.purdy.hall@state.tn.us
Texas					
		John Bassett	(512) 465-7922	(512) 302-2054	jbasset@dot.state.tx.us
		Robert Sarcinella	(512) 506-5933	(512) 465-7616	RSARCIN@dot.state.tx.us
		Scott Koczman	(512) 416-2073	(512) 416-2152	skoczman@dot.state.tx.us
USDOT - FHWA					
		Michael Rafalowski	(202) 366-1571	(202) 493-2070	michael.rafalowski@fhwa.dot.gov
Utah					
		Barry Sharp	(801) 965-4314	(801) 965-4796	rsharp@utah.gov
		Ken Berg, P.E.	(801) 965-4321	(801) 965-4564	kenberg@utah.gov
		Rukhsana Lindsey, P.E.	(801) 965-4196	(801) 965-4796	rlindsey@utah.gov
Vermont					
		William Ahearn	(802) 828-2561		bill.ahearn@state.vt.us
Virginia					
		James R. Swisher	(804) 328-3121	(804) 328-3136	james.swisher@virginiadot.org
		William R. Bailey III	(804) 328-3106	(804) 328-3136	bill.bailey@virginiadot.org
Washington					
		Thomas Baker	(360) 709-5401	(360) 709-5588	bakert@wsdot.wa.gov
		Tony Allen	(360) 709-5450		allent@wsdot.wa.gov
West Virginia					
		Bruce E. Kenney III, P.E.	(304) 558-3044	(304) 558-1209	Bruce.E.Kenney@wv.gov
		Larry Barker	(304) 558-3160	(304) 558-1209	Larry.R.Barker@wv.gov
Wisconsin					
		Ned Schmitt	(608) 261-8631		ned.schmitt@dot.state.wi.us
		Peter J. Kemp	(608) 246-7953	(608) 246-4669	peter.kemp@dot.state.wi.us
Wyoming					
		Delbert McOmie, P.E.	(307) 777-4484	(307) 777-4163	delbert.mcomie@dot.state.wy.us

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 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. Each member department may utilize the data in this report at their discretion. 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 2008.

Background

The concrete admixture manufacturers submitted Product Evaluation Forms (PEF) to the NTPEP Coordinator. The NTPEP Coordinator assigned each material a number (CADD 2008-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 (2008)-17	BASF	MB VR Standard
CADD (2008)-18	BASF	Delvo Stabilizer
CADD (2008)-19	SIKA	Sika Stabilizer 4R
CADD (2008)-20	SIKA	Sikaplast 500
CADD (2008)-21	BASF	Polyheed 900
CADD (2008)-22	W.R. Grace	DCI
CADD (2008)-23	W.R. Grace	WRDA w/Hycol
CADD (2008)-24	W.R. Grace	Daracem 55
CADD (2008)-25	BASF	Pozzolith 200

Vendor Addresses

CADD (2008) 17, 18, 21, and 25

BASF
23700 Chagrin Blvd.
Beachwood, OH 44122

CADD (2008) 19, and 20

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071

CADD (2008) 22, thru 24

W.R. Grace
62 Whittemore Ave
Cambridge, Ma 02140

Manufacturer Data

Data supplied by manufacture at time of submittal is listed in a table 1 on page 3.

NTPEP Test Data

Data compiled by testing state is listed in a table 2 on page 3.

The percent solids were determined for all products by AASHTO M-194 or AASHTO M-154.

Table 1. Manufactures Data


Product Name	NTPEP #	MFG	pH	Sp. Gravity @ 25°C	% Solids Range (M-194)	% Solids Range (M-154)	Chloride % by weight
MB VR Standard	CADD (2008)-17	BASF	11.5 13.5	1.030 1.045		11.85 15.10	<0.10
Delvo Stabilizer	CADD (2008)-18	BASF	2.0 4.0	1.050 1.090	12.00 15.00		<0.20
Sika Stabilizer 4R	CADD (2008)-19	SIKA	7.0 10.0	1.019 1.039	5.50 7.50		NF
Sikaplast 500	CADD (2008)-20	SIKA	8.0 11.0	1.139 1.171	31.68 40.32		NF
Polyheed 900	CADD (2008)-21	BASF	6.0 10.0	1.220 1.268	36.00 45.70		<0.13
DCI	CADD (2008)-22	W.R. Grace	7.0* 10.5*	1.270 1.330	30.60 39.40		<0.01
WRDA w/ Hycol	CADD (2008)-23	W.R. Grace	7.5 10.5	1.130 1.215	35.60 45.40		<0.15
Daracem 55	CADD (2008)-24	W.R. Grace	5.0 10.0	1.250 1.310	40.00 51.00		<0.05
Pozzolith 200	CADD (2008)-25	BASF	4.0 8.0	1.168 1.206	30.50 38.90		<0.30


*pH measured in a 1:20 dilution

Table 2. NTPEP Test Data

Product Name	NTPEP #	MFG	pH	Sp. Gravity @ 25°C	% Solids Range (M-194)	% Solids Range (M-154)
MB VR Standard	CADD (2008)-17	BASF	12.17	1.041		13.48
Delvo Stabilizer	CADD (2008)-18	BASF	2.53	1.065	12.30	
Sika Stabilizer 4R	CADD (2008)-19	SIKA	8.09	1.027	6.88	
Sikaplast 500	CADD (2008)-20	SIKA	8.84	1.162	35.49	
Polyheed 900	CADD (2008)-21	BASF	7.91	1.228	39.67	
DCI	CADD (2008)-22	W.R. Grace	7.64*	1.276	32.46	
WRDA w/Hycol	CADD (2008)-23	W.R. Grace	7.60	1.176	40.95	
Daracem 55	CADD (2008)-24	W.R. Grace	6.70	1.289	45.34	
Pozzolith 200	CADD (2008)-25	BASF	5.82	1.187	34.48	

* pH measured on a 1:20 dilution of submitted product at request of manufacturer.



“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



Call 1.202.624.5800
Fax 1.800.525.5469
Online www.NTPEP.ORG

ITEM: NTPEP Report 13004.1

