Micro Surfacing a field view of important facts.

HOT

EMULSION

vance brothers
WATER
5149
Custom Built Trailers
800-301-3487
NEVILLE WELDING, INC.
620-532-3487 Kingman, KS

ADDITIVE
WARNING
Corrosive chemicals may be present.
Exposure may result in serious injury.
Wear appropriate personal protective equipment.
ADVERTENCIA
Químicos corrosivos pueden estar presentes.
Exponerse a ello puede resultar en lesiones severas.
Vestir equipo de protección personal adecuado.
SAFETY INSTRUCTIONS
INSTRUCCIONES DE SEGURIDAD

Bingham Sand and Gravel
P.o Box 660
Baxter Springs,Ks 66713
620-679-9810 ext 214

Date 8/24/12

Please find enclosed process control plan for Vance Bros
All material for this project will be produced by Bingham Sand and Gravel at the Stoner
Lease, which is located in the 16 of section 29N ,twp 23E ,Range
OTTAWA Co in OKlahoma

The material, KS TYPE 2 will be produced in accordance with applicable standards as set forth In the specifications. The material will be stockpiled in project piles and tested in accordance with applicable provisions. Certificates of aggregate will be provided for all materials used in this project. Certifications reports will be forwarded weekly to your office.
I here by certify that all materials produced for the project listed above will meet all applicable specifications.

~~Jody Bingham~~ Brandon Williams
Quality Control Manager

ASH GROVE CEMENT COMPANY

4343 Highway 108
Foreman, Arkansas 71836
Phone: 870-542-3040

Type I/II

Production Period: June 1 thru June 30, 2012 **Date: 7/6/2012**

The following information is based on average test data during the production period. The data is typical of cement shipped from the Foreman, Arkansas plant. Individual shipments may vary.

STANDARD REQUIREMENTS
ASTM C150/C150M-09

CHEMICAL

Item	A.S.T.M. Test Method	Spec. Limit	Test Result
SiO_2 (%)	C114	*A*	20.16
Al_2O_3 (%)	C114	*A*	4.86
Fe_2O_3 (%)	C114	*A*	3.69
CaO (%)	C114	*A*	63.69
MgO (%)	C114	6.0 max	0.98
SO_3 (%)	C114		3.16
Loss on ignition (%)	C114	3.0 max	2.17
Na_2O (%)	C114	*A*	0.18
K_2O (%)	C114	*A*	0.55
Insoluble Residue (%)	C114	0.75 max	0.49
CO_2 (%)	C114	*A*	1.09
Limestone (%)	C114		2.8
$CaCO_3$ in limestone (%)	C114		89.45
Potential compounds (%)[D]			
C_3S	C114	*A*	55
C_2S	C114	*A*	14
C_3A	C114		6
C_4AF	C114	*A*	11
$C_3S + 4.75\ C_3A$	C114		84

PHYSICAL

Item	A.S.T.M. Test Method	Spec. Limit	Test Result
Air content of mortar (volume %)	C185	12 max	8
Fineness (cm^2/g):			
Air permeability	C204	2800 min	4096
Autoclave expansion (%)	C151	0.80 max	0.02
Compressive strength (psi)			
1 Day	C109	*A*	2652
3 Days	C109	1740 min	4416
7 Days	C109	2760 min	5197
Time of setting (minutes) (Vicat)			
Initial: Not less than	C191	45	123
Not more than		375	123
Mortar Bar Expansion (%)	C1038	0.020 max	0.010

OPTIONAL REQUIREMENTS
ASTM C150/C150M-09, Tables 2 and 4

CHEMICAL

Item	A.S.T.M. Test Method	Spec. Limit	Test Result
$C_3S + C_3A$ (%)	C114	*A*	
Equivalent alkalies (%)	C114	0.60	0.54
Equivalent alkalies (Min)	C114	*A*	0.51
Equivalent alkalies (Max)	C114	*A*	0.60

PHYSICAL

Item	A.S.T.M. Test Method	Spec. Limit	Test Result
False set (%)	C451	*B*	69
Heat of hydration (kJ /kg)			
7 days	C186	*B*	84

A = Not applicable.
B = Limit not specified by purchaser, test result provided for information only.
C = Test results for this period not available.
D = Adjusted per Annex A1.6 M85

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C150/C150M-09 (Types I/II) and AASHTO M85-07 (Type I/II), or (other)_____specification.

Signature: Floyd Arnold

Floyd Arnold
Title: Chief Chemist

Certificate of Analysis

This is to certify that on 7-9-12 I have examined the contents of Tank 42 Batch Number 070612-105
and that said CSS-1HM (PMCSS-1H) Emulsified Asphalt (VB) complies with the following analysis:

EMULSIFIED ASPHALTS

API Gravity @ 60 F. _____
Specific Gravity @ 60 F. 1.0192
Pounds/Gallon @ 60 F. 8.488

Residue by Distillation, % by wt. 65.9
Viscosity, Saybolt Furol @ 77 F., secs., 38.4
Sieve Test, % retained, .0024
Storage Stability Test, 1 Day, %, 0.41
Oil Distillate, % by volume, _____
Particle Charge Test, Positive
Cement Mixing Test, _____
Demulsibility:
35 mls. @ .02N CaCl2, %, _____
50 mls. @ .10N CaCl2, %, _____
35 mls. @ .80% sodium dioctyl sulfosuccinate, %, _____
Ash Test, %, _____

Tests on Distillation Residue:
Penetration, 100g., 5 secs., @ 77 F., 65
Ductility, cms., @ 77 F., 80+
Solubility in Trichloroethylene, %, 99.15
Float Test @ 140 F., secs., _____
Elastic Recovery @ _____ F., _____
Saturates, %, _____

Coating Test _____
pH _____
Polymer Content, %, 3.0+

Shell Capacity, Gallons, 20,000

CUTBACK ASPHALTS

API Gravity @ 60 F. _____
Specific Gravity @ 60 F. _____
Pounds/Gallon @ 60 F. _____

Viscosity, Kinematic @ 140 F., Cs., _____
Distillation : % by volume | % of total to 680 F.

Initial Boiling Point _____
Off @ 320 F., _____
Off @ 347 F., _____
Off @ 374 F., _____
Off @ 437 F., _____
Off @ 500 F., _____
Off @ 600 F., _____
Off @ 680 F., _____
Residue from Distillation, % Volume, _____
Penetration @ 77 F, 100g., 5 secs., _____
Solubility in Trichloroethylene, %, _____
Ductility @ 77 F., cms., _____
Softening Point, F., 148
Absolute Viscosity @ 140 F., 300 mm. Hg., poises, _____
Residue, % by weight., _____
Flash Point, F., TOC, _____ COC, _____
Brookfield Viscosity @ 77 F., cps., _____

Gallons, Innage, 20,000

The preceding information is a true and correct analysis to the best of my knowledge. The material conforms to the requirements of Mo.S.H.D., K.D.O.T., I.D.O.T., and A.H.T.D., and Oklahoma DOT.

Stan L. Fronkens

vancebrothers
Bringing Integrity to the Surface.
phone: 800.821.8549 • 816.923.4325 fax: 816.923.6472 web: vancebrothers.com
5201 Brighton Kansas City, Missouri 64130

vancebrothers
Bringing Integrity to the Surface.

Micro Surfacing Mix Design ISSA A143 Design Technical Bulletin

Date: May 3, 2012

Project No: VB 060309-101

Mix Type/Specification:
Kansas Type II Microsurfacing

For: Claycomo, MO

Vance Brothers, Inc. 5201 Brighton, Kansas City, MO 64130 Tel: 816-923-4325 Fax: 816-923-6472 e-mail: mburrow@vancebrothers.com Website: http://www.vancebrothers.com

Table 1 Aggregate Analysis

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SIEVE #	KANSAS TYPE II SPECIFICATIONS	% PASSING
3/8”	99 - 100	100
4	86 -94	90.5
8	45 -65	65.0
16	25 - 46	42.2
30	15 - 35	27.7
50	10 - 25	17.5
100		11.3
200	5 - 15	8.2

TEST	ISSA SPECIFICATION	RESULT
Sand Equivalent	65	68.0

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Bringing Integrity to the Surface.

Table 2 Micro Surfacing Emulsion Formulation

COMPONENT	PERCENTAGE, BY WEIGHT EMULSION
Emulsifiers	1.0
Water	33.00
Natural Latex	4.00
Asphalt: United Asphalt PG 64-25	62.0

Table 3 Micro Surfacing Emulsion Test Results

TEST PROCEDURE	*RESULTS*
Residue, Solids Asphalt and Latex %	65.5
Sieve, %	.0031

Table 4 Micro Surfacing Job Mix Formulation

COMPONENT	*PERCENTAGE, ON DRY AGGREGATE BASIS*
Type I Portland Cement	1.0 - 2.0
Total water	8.0 - 10.0
Emulsion	14.0 - 15.0
Aggregate: KANSAS Type II (Joplin Chat)	100.0

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vancebrothers
Bringing Integrity to the Surface.

5201 Brighton Kansas City, MO 64130
816.923.4325
www.vancebrothers.com

SOLD TO: ICT 102-25289 #2

SHIPPED TO: Lawrence KS
Brian 918-9637

DATE: 8-7-12 | ACCOUNT NO. | SOLD BY: JH | CASH | CHECK NO. | CHARGE: X | REFUND | P.O. | SHIPPED VIA: VB

DEPT.	JOB NO.	PRODUCT NO.	QUANTITY	UNIT	HM	DESCRIPTION	PRICE	AMOUNT	TAX EX.
106			5390	Gal		SS-1HM VB			

SUBTOTAL ▸

FOR PRODUCT EMERGENCY ▸ Spill, Leak, Fire, Exposure or Accident - Call **CHEMTREC** DAY OR NIGHT **800-424-9300**

D.O.T. HAZARDOUS MATERIALS PLACARDS FURNISHED BY ☐NA ☐SHIPPER ☐CARRIER

D.O.T. HAZARDOUS MATERIALS PLACARDS ACCEPTED ☒NA ☐YES ☐NO

TAX ▸

TOTAL ▸

W.P.G. 2.4.18 | RESIDUE BY WEIGHT: 65.5 % DIST. | TRUCK: 3178 | TRAILER: 5169 | TANK: 59 | SPEC. GRAV. | TEMPERATURE: 126

Description and gross weight thereof as shown herein are correct per Agreement filed with Weighing and Inspection Bureau, if applicable. "This is to certify that the materials named above are properly classified, described, packaged, and marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

PROJECT NO.

CERTIFICATION NUMBER

This certifies that the asphaltic material in this shipment complies with Missouri, Kansas, Iowa and Nebraska Departments of Transportation for the grade specified. The weights shown hereon were obtained on Department approved scales and are current within the specified scale requirements.

THIS MATERIAL MEETS OR EXCEEDS SPECIFICATIONS FOR:

WJS
WEIGHMASTER

TIME / DATE GROSS: 23:59:29 08-06-12 75080 LB

TIME / DATE TARE: 22:53:26 08-06-12 29540 LB

NET: 45540

ETA: 10:00 AM PM | ARRIVE: AM PM | START UNLOAD: AM PM | FINISH: AM PM

SPECIAL INSTRUCTIONS: 1, 8

REASON FOR DELAY

K220934

X

CEMENT
ROCK
EMULSION
001037
000073
044446
AUXILIARY WATER
ROCK
EMULSION
CEMENT
WATER
ADDITIVE
CEMENT REVERSE
OFF ON
EMULSION TIME DELAY
SLOWER
QUICKER
STOP
SLOWER
QUICKER
START
THROTTLE

ABC

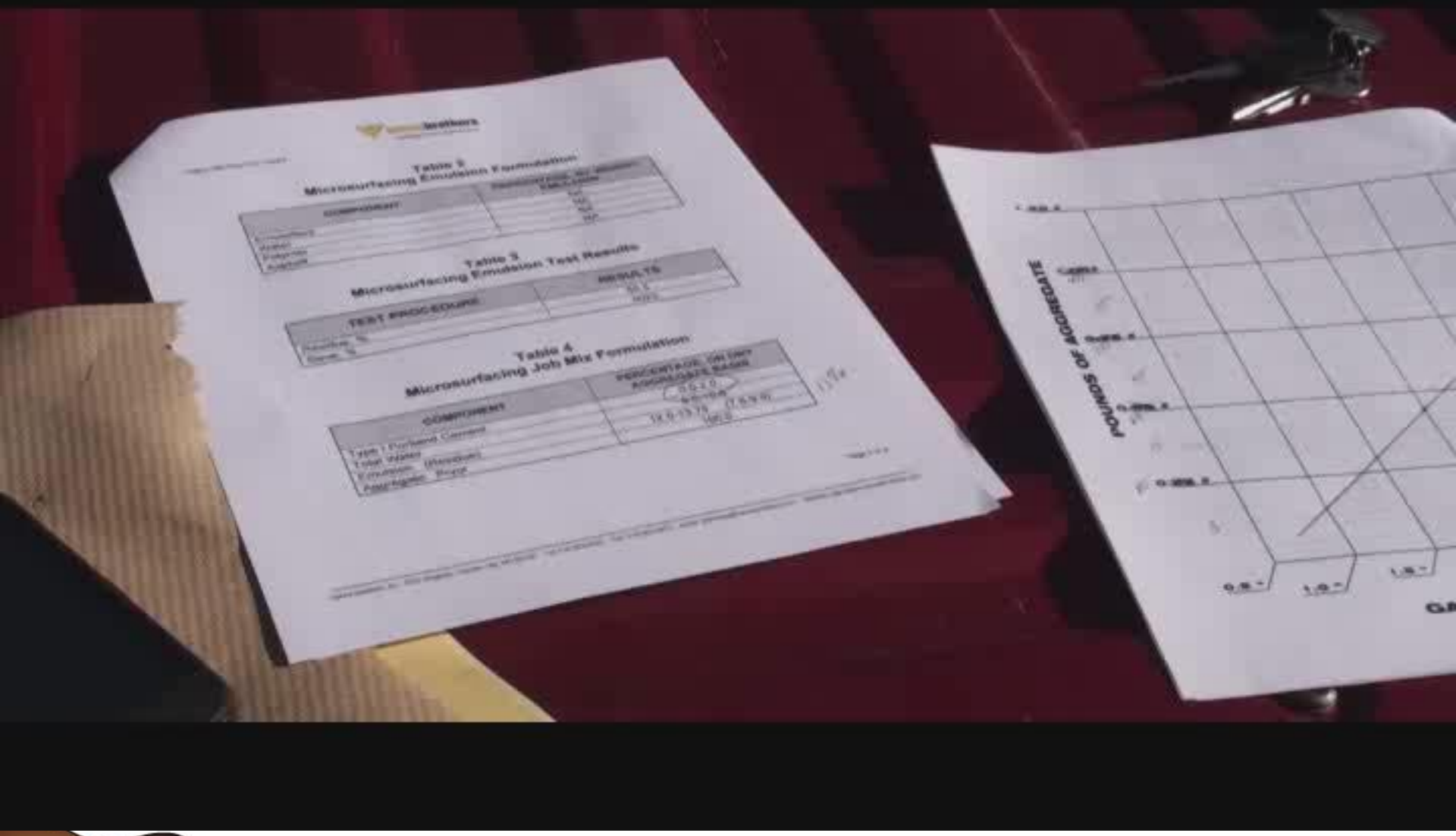


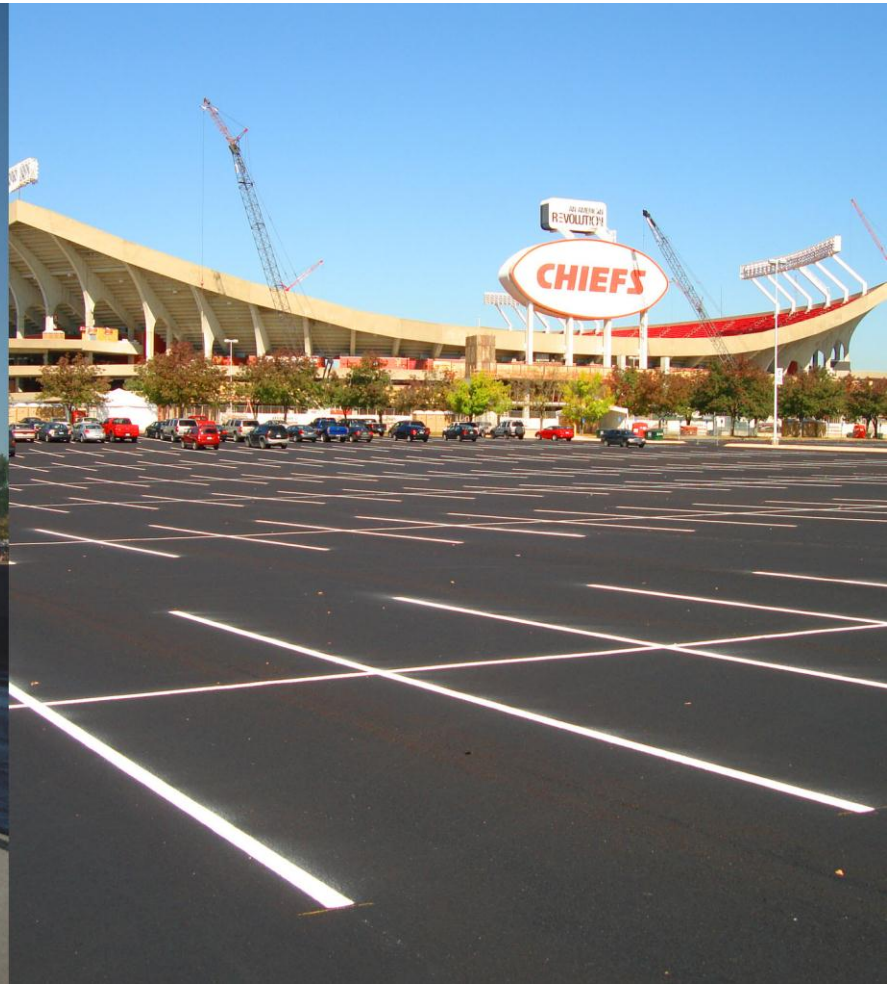
Table 3
Microsurfacing Emulsion Test Results
Table 4
Microsurfacing Job Mix Formulation
POUNDS OF AGGREGATE

831
STERLING

STERLING

vance brothers
3238

CHIEFS


CHIEFS

Questions ?