



Division of Canadian Road Builders Inc.

Petra Products Ltd.
PO Box 57136 2020 Sherwood Drive
Sherwood Park, AB T8A 5L7

March 3, 2017

Attention: George Wiebe

RE: Test Results MC Modified Cold Mix Binder

Attached are the results of testing that were carried out on the samples that were submitted to the GECAN, Acheson Laboratory that were identified as MC Modified.

To determine the properties of the MC Modified binder, a single asphalt content point was produced and tested using Alberta Transportation procedure TLT 302. This was performed on an aggregate mix from a previous asphalt cold mix design meeting the Alberta Transportation Designation 2 Class 16 specification, which originally used a conventional MC 250 cutback asphalt binder.

A distillation of the asphalt binder determined that it had an 87.6% residue.

A comparison of the Stabilities and flows are as follows:

	MC Modified	MC 250	AT Specification
Total Asphalt Content (%)	5.2	5.3	
Residual Asphalt Content (%)	4.6	3.8	
Density (kg/m ³)	2389	2347	
Air voids (%)	3.2	5.3	3 - 6
Marshall Stability(N) <i>25°C</i>	15,990	14,780	6,700
Flow (mm)	2.6	3.3	

Results indicate that there is a slight increase in the mix stability with MC Modified over the conventional MC250.

I trust this information meets your requirements. If you have any questions please call.

David Bagdan, P.Eng.
Roadway Materials Engineer
GECAN

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Division of Canadian Road Builders Inc.



Supplier
Location
Sample Identified as
Date Received
Batch Number
Tank No
Comments
Sample Lab Number

Petra Products

MC modified
May, 19 2009

41494

	Test Name and AASHTO(T)/ASTM(D) Designation	Specifications**		Temperature (°C)	Test Result	Units
		Min	Max			
Tests on Cutback						
	Flash Pt. COC T48/D92	80			98	°C
	Kinematic Viscosity T201/D2170	250	500.00	60	265.14	%
	Distillation Test					
	% by volume of total Distillate to 360°C					
	-to 225°C	0.5	5		0.5	%
	-to 260°C	0.5	10		0.8	%
	-to 315°C	15	30		23.0	%
Tests on Distillation Residue						
	Penetration 5s, 100g (T49/D5)	1500	2000	25	1900	mm/10
	Ductility (D113)	100		25	125+	cm
	TCE Solubility (T44/D2042)	99.5			99.92	%
	Water, % by mass or volume		0.2		<0.05	%

NOTES: **Product specifications provided by Petra Products Ltd.

Tested By: Abdul Elkadri, B.Sc - Asphalt Laboratory Technician



Division of Canadian Road Builders Inc.



Supplier	Petra Products
Location	
Sample Identified as	MC-250
Date Received	June, 15 2010
Batch Number	
Tank No	
Comments	
Sample Lab Number	42391

	Test Name and AASHTO(T)/ASTM(D) Designation	Specifications		Temperature (°C)	Test Result	Units
		Min	Max			
Tests on Cutback						
	Flash point, (open tag), °C	65			-	°C
	Kinematic Viscosity T201/D2170	250	500.00	60	351.80	%
	Distillation Test					
	% by volume of total Distillate to 360°C					
	-to 225°C	0	10		1.8	%
	-to 260°C	15	55		30.4	%
	-to 315°C	60	87		78.6	%
	% Residue to 360°C	67			72.0	%
Tests on Distillation Residue						
	Penetration 5s, 100g (T49/D5)	120	250	25	226	mm/10
	Ductility (D113)	100		25	100+	cm
	TCE Solubility (T44/D2042)	99.5			99.99	%
	Water, % by mass or volume		0.2		0	%

NOTES:

Tested By: Abdul Elkadri, B.Sc - Asphalt Laboratory Technician
Verified by: Tony Manzi, PG certified - Manager Asphalt Laboratory