FORENSIC DYNAMICS INC.
CONSULTING FORENSIC & BIOMECHANICAL ENGINEERS

OUR FILE: SB23

November 23rd, 2006

Levelton Consultants Ltd.
150-12791 Clarke Place
Richmond, BC
V6V 2H9

Attention: Steffyn Varisco

Dear Sir:

RE: Friction Testing of Sears Ecological Ice B'Gone II HF

As requested, we have completed the testing of this anti-icing agent on an asphalt test surface. Enclosed please find the tabulated and graphical result of the humidity and friction versus time testing.

Briefly, during testing, the anti-icing agent is applied at a rate of 60 liters per lane kilometer, 25 gallons per lane mile, to the test surface. The environmental chamber, in which the testing is done, is then sealed and the temperature is rapidly reduced to 5• •Celsius, 41• •Fahrenheit. The humidity in the chamber is then reduced to approximately 30% until the chemical dehydrates into its solid state. Once this has been achieved, humidity is reintroduced into the chamber, to allow the agent, if possible, to re-hydrate into its liquid state. Throughout, friction tests are performed at five minute intervals to monitor the agent's effect on the friction on the asphalt test surface.

As you can see from the enclosed data, when initially applied in liquid form, **Ice B'Gone II HF** produced a friction of 0.63, this was the minimum friction recorded. The same asphalt surface had an average friction of 1.08 ± 0.05 when dry and 0.92 ± 0.05 when wetted with water only. Application of the chemical, therefore, reduced the friction on the asphalt surface to a value less than if the test surface was wetted with water only. This is seen with almost all anti-icers when in a liquid state.

As you will appreciate from the enclosed graphs, at relative humidity levels below 30 to 40%, the agent dehydrated from liquid to solid. During this liquid to solid transition a maximum friction of 1.32 was recorded before the agent's solid phase friction reduced to that of the dry test track. When relative humidity levels were then increased above 50% the friction produced by the agent dropped rapidly back to a liquid value of around 0.68. Please note, these latter values are a better estimate of the agent's friction in liquid form after having been trafficked. A marked drop in friction during the liquid to solid and vice-versa phase change was not observed.

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We trust the above is satisfactory for your needs at this time. Please contact the undersigned should you require clarification on the results. We trust we were of service and look forward to serving your needs in the future.

Yours very truly,
FORENSIC DYNAMICS INC.

GERALD D. SDOUTZ, P. Eng.
Project Engineer

GDS:gs
Enc.

Company: Sears Ecological **Date:** 30-Oct-06

Product: Ice B'Gone II HF **App Rate:** 60 L/Lane km

	1	2	3	4	Avg	Friction
Dry	12.32	12.16	11.68	12.00	12.04	1.04
Wet	10.88	10.32	10.72	10.96	10.72	0.92

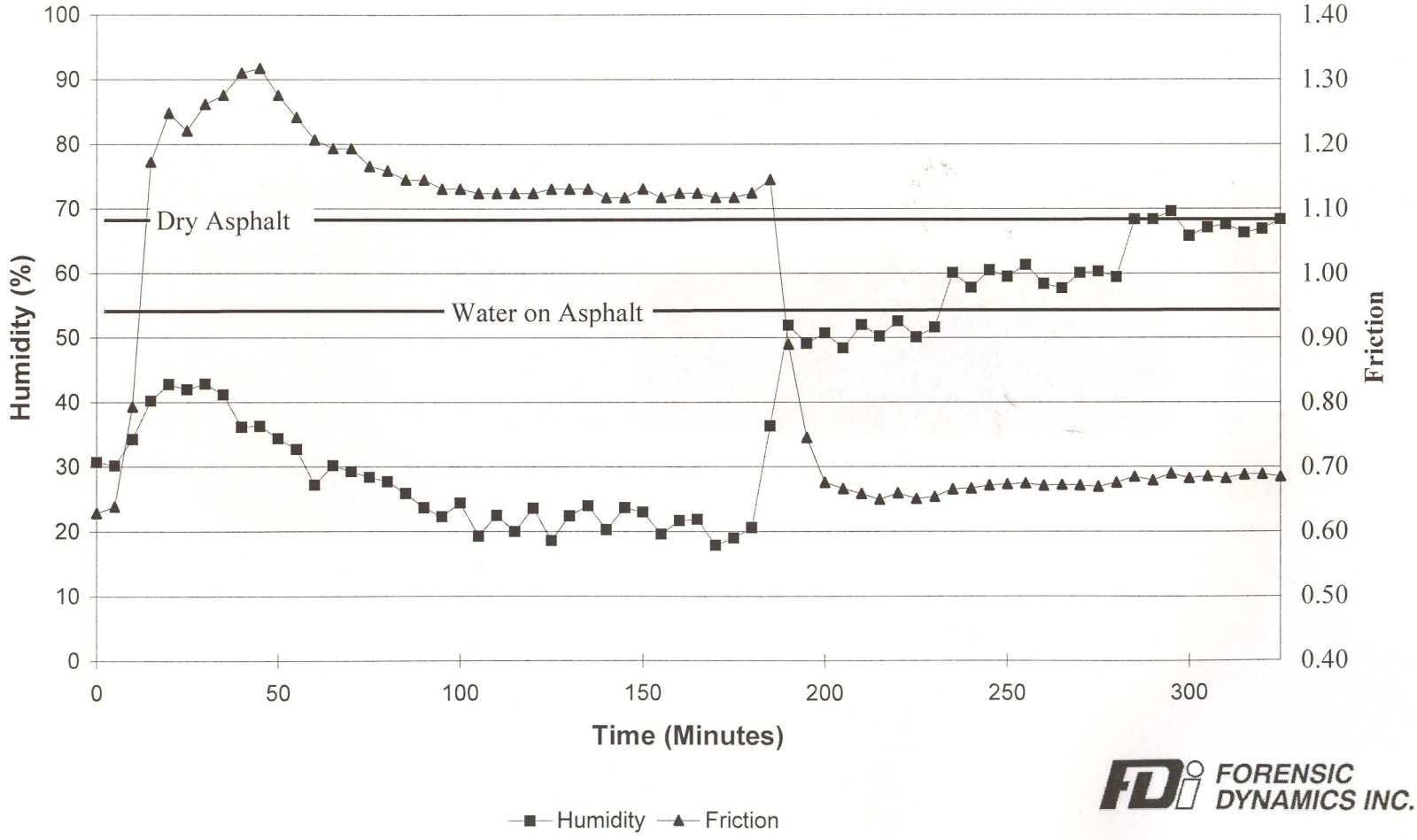
Time	Temp	Humidity	Force	Friction
0	12.6	30.7	7.3	**0.63**
5	8.43	30.2	7.4	**0.64**
10	6.1	34.3	9.2	**0.79**
15	5.11	40.2	13.6	**1.17**
20	5.11	42.8	14.5	**1.25**
25	4.82	42	14.2	**1.22**
30	4.9	42.9	14.6	**1.26**
35	4.9	41.2	14.8	**1.28**
40	4.76	36.2	15.2	**1.31**
45	4.69	36.3	15.3	**1.32**
50	4.76	34.4	14.8	**1.28**
55	5.09	32.7	14.4	**1.24**
60	4.86	27.2	14.0	**1.21**
65	5.11	30.2	13.8	**1.19**
70	5.11	29.3	13.8	**1.19**
75	4.88	28.4	13.5	**1.17**
80	4.27	27.7	13.4	**1.16**
85	4.08	25.9	13.3	**1.14**
90	4.02	23.7	13.3	**1.14**
95	4.84	22.3	13.1	**1.13**
100	4.21	24.4	13.1	**1.13**
105	3.82	19.3	13.0	**1.12**
110	4.53	22.5	13.0	**1.12**
115	4	20	13.0	**1.12**
120	4.3	23.6	13.0	**1.12**
125	4.04	18.6	13.1	**1.13**
130	3.88	22.4	13.1	**1.13**
135	4.69	24	13.1	**1.13**
140	3.76	20.3	13.0	**1.12**
145	4.15	23.7	13.0	**1.12**
150	5.04	23	13.1	**1.13**
155	3.54	19.6	13.0	**1.12**
160	3.91	21.7	13.0	**1.12**
165	4.69	21.9	13.0	**1.12**
170	4.29	17.9	13.0	**1.12**
175	3.95	19	13.0	**1.12**
180	4.69	20.6	13.0	**1.12**
185	4.76	36.3	13.3	**1.14**
190	4.78	51.9	10.3	**0.89**
195	4.8	49.1	8.6	**0.74**
200	4.78	50.7	7.8	**0.68**
205	4.7	48.4	7.7	**0.67**
210	5.07	52	7.6	**0.66**

215	4.78	50.2	7.5	**0.65**
220	4.95	52.6	7.6	**0.66**
225	4.69	50.1	7.6	**0.65**
230	4.78	51.6	7.6	**0.65**
235	4.78	60.1	7.7	**0.67**
240	4.86	57.8	7.7	**0.67**
245	4.84	60.5	7.8	**0.67**
250	4.78	59.5	7.8	**0.67**
255	4.78	61.3	7.8	**0.67**
260	4.78	58.4	7.8	**0.67**
265	4.78	57.7	7.8	**0.67**
270	4.84	60.1	7.8	**0.67**
275	4.84	60.3	7.8	**0.67**
280	4.78	59.4	7.8	**0.68**
285	4.82	68.4	7.9	**0.68**
290	4.94	68.4	7.9	**0.68**
295	5.11	69.6	8.0	**0.69**
300	4.78	65.8	7.9	**0.68**
305	4.88	67.1	8.0	**0.69**
310	4.78	67.6	7.9	**0.68**
315	4.78	66.3	8.0	**0.69**
320	4.78	66.9	8.0	**0.69**
325	4.78	68.4	7.9	**0.68**
			Min:	**0.63**
			Max:	**1.32**

FORENSIC DYNAMICS INC.

Sears Ecological - Ice B'Gone II HF

Humidity & Friction vs. Time



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