



# CROWN CAPITAL ENTERPRISE LIMITED 中怡企業發展有限公司

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## Asphalt Laboratory Report

ISO9000 : 2000 #FS81129

Report Number : 2007/07/#012  
Client : South East Asia  
Job Location : South East Asia  
Material Type : RejuvaSeal / RJSeal – Asphalt Rejuvenator  
Test Date : 1 July 2007

Test Methods	Description	Test Result	Conformance Production Tolerances
ASTM D70	Specific Gravity of Semi-Solid Bituminous Materials (25/25 ° C) (g/cm <sup>3</sup> )	1.062	Min 1.04
ASTM2170	Kinematics Viscosity (Equiv Engler specific viscosity @ 50 ° C, to ASTM D1665)	4.62	8.0 max
ASTM D95	Water, % by volume	1.63	2.0 max
ASTM D20	Distillation, % by weight of total material at: 170 ° C 270 ° C 300 ° C	18.26 41.11 56.46	Max 20.0 20.0 to 50.0 Max 60.0
ASTM D36	Softening point on residue from distillation, ° C	46.2	Max 65

Remarks: RJSeal is a trade mark designated for China Market whilst RejuvaSeal is for South East Asia.

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### MATERIAL SAFETY DATA SHEET

#### SECTION 01: CHEMICAL PRODUCT

Product Name **RejuvaSeal / RJSeal™ Asphalt Pavement Rejuvenator**  
Sealer  
Chemical Family Not Applicable  
Chemical Formula Complex Hydrocarbon Mixture

#### SECTION 02: COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	%	EXPOSURE LEVELS	CHEMICAL ABSTRACTS SERVICE # (C. A. S. #)	LETHAL DOSE / 5D,ROUTE, SPECIES	LC / 5D, ROUTE, SPECIES
Aromatic Solvent	32%~4 2%	300 ppm	64742-95-6	RAT / ORAL 4700 mg / kg. RAT / DERMAL > 4.0 mg / kg. RAT / INH > 3670 ppm 4 hr.	
Refined Bitumen RT12 Pitch	35%~5 0%	0.2 mg / m <sup>3</sup>	65996-93-2		
Aromatic Oils	15%~4 0%	0.2 mg / m <sup>3</sup>	65996-91-0		

#### SECTION 03: HAZARDS IDENTIFICATION

##### Potential Health Effects

Route of Entry See Effects of Acute Exposure

##### Effects of Acute Exposure

Eye Contact Can cause severe irritation and swelling of eye tissues (Conjunctivitis) and corneal burns. May cause permanent eye damage if contact not eliminated immediately.



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Ingestion	May cause irritation of the gastrointestinal tract.
Inhalation	May cause moderate irritation to the respiratory tract. May affect the central nervous system.
Skin Absorption	Not absorbed through skin.
Skin Contact	May cause drying, cracking, or inflammation of the skin. Prolonged or repeated contact may cause irritation and/or dermatitis.

Effects of Chronic Exposure None Known

#### **SECTION 04: FIRST AID MEASURES**

Skin Contact	Remove from skin by washing thoroughly with soap and water. Baby oil is helpful in removing residual material. Burns - DO NOT attempt to remove asphaltic material. Seek medical attention immediately.
Inhalation	Remove victim to fresh air. If breathing has stopped properly trained personnel should begin artificial respiration. Get medical attention immediately.
Ingestion	If ingested, consult a physician
Eye Contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult physician if irritation continues.
Note to Physicians	N/A
Additional Information	Not Available

#### **SECTION 05: FIRE FIGHTING MEASURES**

Flash Point (C), Method	> 72° C
Auto Ignition Temperature (° C)	Not Available
Upper Flammable Limit (% VOL)	7.0
Lower Flammable Limit (% VOL)	1.0
Extinguishing Media	Carbon Dioxide, Foam, Dry Chemical, Water Fog
Hazardous Combustion Products	Carbon Dioxide, Carbon Monoxide, Sulphur Dioxide.
Sensitivity to Mechanical Impact	Not Available
Sensitivity to Static Discharge	Not Available



**SECTION 06: ACCIDENTAL RELEASE MEASURES**

Leak / Spill	Contain the spill. Eliminate all sources of ignition, absorb residual material with sand, and/or other absorbent material, or recover using electrically grounded explosion proof pumps.
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**SECTION 07: HANDLING AND STORAGE**

Handling Procedures	Avoid skin and eye contact. Equipment must be grounded.
Storage Needs	Keep containers closed when not in use. Store containers in a cool area. Containers must be grounded. Store away from oxidizing materials and all sources of ignition.

**SECTION 08: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Protective Equipment**

Eye / Type	Splash proof chemical goggles or 8" face shield.
Respiratory / Type	Not required under normal conditions. In closed areas, wear approved air purifying respirator for dust/fumes/mist and organic vapours or supplied air respirator.
Gloves / Type	Do not wear natural rubber or polyvinyl chloride gloves.
Clothing / Type	Long sleeve, loose fitting clothing, closed at the neck and tight fitting at the wrist. Have contaminated clothing washed before reuse.
Footwear / Type	Safety boots per local regulations.
Other Type	NA
Ventilation Requirements	Mechanical ventilation recommended in enclosed areas.

**SECTION 09:****PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	
Physical State	Liquid
Odour	Hydrocarbon Odour
Odour Threshold	Not Available
Specific Gravity	> 1.03
Vapour Pressure (mm Hg)	Not Available
Vapour Density (AIR = 1)	> 1
Evaporation Rate	Not Available
Boiling Point (° C)	> 133° C
ph	Not Available
Solubility in Water (%W / W)	Negligible
Coefficient of Water \ Oil	Not Available
Distribution Freezing Point (° C)	Not Available
Melting Point (° C)	Not Available
Molecular Weight	Not Available

**SECTION 10:****STABILITY AND REACTIVITY**

Hazardous Polymerisation	Not Applicable
Stability	Keep away from heat, sparks, open flames.
Incompatibility	Incompatible with strong acids, strong bases, strong oxidizing agents.
Reactivity Conditions	May ignite if over heated or in the presence of strong oxidizers.
Hazardous Products of Decomposition	Carbon Monoxide, Carbon dioxide, sulphur dioxide

**SECTION 11:****TOXICOLOGICAL INFORMATION**

Irritancy of material	Refer to route of entry.
Sensitising Capability of Material	None known
Carcinogenicity of Material	Petroleum fraction includes many naturally occurring polycyclic aromatic hydrocarbons (PAH's). Certain species of PAH's have been implicated in the incidence of skin cancer in test animals.



Teratogenicity	None known
Mutagenicity	None known
Reproductive Effects	None known
Synergistic Materials	None known

**SECTION 12:      ECOLOGICAL INFORMATION**

Environmental	Not Available
Ectotoxicological Information	Not Available
Biodegradability	Not Available

**SECTION 13:      DISPOSAL CONSIDERATIONS**

Waste Disposal      Dispose with absorbent material in accordance with regulatory laws. Waste management priorities (depending on volumes and concentration of waste) are;

1. Recycle (reprocess),
2. Energy Recovery (cement kilns, thermal power generation),
3. Incineration,
4. Disposal at licensed waste facility.

Do not attempt to combust waste on-site. Incinerate at a licensed waste disposal site with approval of environmental authority.

**SECTION 14:      TRANSPORT INFORMATION**

U.N.	#1999
Transport Dangerous Goods Classification	3.2



**SECTION 15: REGULATORY INFORMATION**

U.S. Federal Regulations	Hazardous Material Identification System Classification Health - 2, Flammability - 2, Reactivity - 0.
International Regulations	Not regulated
State Regulations	Not regulated
Workplace Hazardous Materials Information System Classification	B3, D2A
Cardiopulmonary Resuscitation Compliance	This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

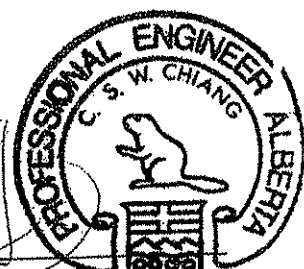
**SECTION 16: OTHER INFORMATION**

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind expressed or implied is made to the information contained herein.

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### General Standard of Rejuvenator and Seal or Reluvenator or Sealer (as of July 2007)

Property	Test Method	Requirement				
		FAA Eng. Brief 44	DNT Canada	RejuvaSeal (USA)	RejuvaSeal (Export) 1 July 2007	RJSeal (China)
Specific Gravity 25/25°C	ASTM D70	1.04 min.	1.04 min.	1.06 min	1.062	1.04 min
Kinematics Viscosity @50C, cSt	ASTM D2170					
(Engler Viscosity @ 50° C	ASTM D1665	8.0 max.	4.5 max.	8.0 max	4.62	8.0 max
Water, % by Volume	ASTM D95	2.0 max.	2.0 max.	2.0 max	1.63	2.0 max
Distillation, % by Weight of Total Material off at:						
170°C	ASTM D20	20 max.	30 max.	< 20	18.26	<30
270°C		20 to 50	25 to 45	20 to 50	41.11	20 to 50.
300°C		60 max.	30 to 55	40 to 60	56.46	40 to 60
Softening Point on Residue From Distillation,	ASTM D36	65 max.	40 to 55	40 to 55 max	46	65 max
Flash Point (°C)	ASTM D3143-98 at 72°C					
Penetration (dmm)	ASTM D5 at 25					
Absolute Viscosity	ASTM D2171, at 60°C					
Ductility (cm)	ASTM D113 at 25° C					
Softening Point (°C)	ASTM D36 at 40°C-65°C max					



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(as of July 2007)

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