
Carlsbad “College Blvd Project”
PG64-28TR with min 15% tire rubber
Mill and Overlay: Gap Graded Gradation
Project Date Nov 2010
Picture taken on Dec 9, 2010


PG64-28TR


PG64-28TR


Aston Ave
PG64-28TR


PG64-28TR


PG64-28TR


PG64-28TR


PG64-28TR


PG64-28TR

Specification

203-14 Tire Rubber Modified Asphalt Concrete (TRMAC).
Add the following:
203-14.2.1 Tire Rubber Modified Paving Asphalt.
Tire rubber modified paving asphalt shall contain a minimum of 15% scrap tire rubber from California. Manufacturer shall certify that the scrap tire rubber came from scrap California tires. Manufacturer shall provide lab test results, dated within 6 months, showing that the tire rubber modified paving asphalt conforms to the table on page 3.

203-14.3 Composition and Grading.
Replace with the following:
Rubberized asphalt concrete shall be class PG64-28TR, 15% tire rubber, Gap-graded C aggregate per Section 203-11.3 of the Greenbook (2009 Edition). Mix design shall be submitted for approval per Greenbook Section 203-6. The percentage of binder by weight of dry aggregate shall be determined by Hveem stability lab testing at 5 different binder contents. Once the percent asphalt binder is determined by the mix design, the production tolerance shall be +/- 0.3% as determined by California Test Method 362, 379, or 382.

Performance Graded Tire Rubber Modified Paving Asphalt

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 TR	PG 64-28 TR	PG 76-22 TR
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % [b]	T 44[c]	97.5	97.5	97.5
Viscosity at 135°C, Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note e 80	Note e 80	Note e 80
Elastic Recovery[f], Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV[g] Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300

Notes:
a. Do not modify PG Tire Rubber Modified using acid modification.
b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by the Caltrans' "Certification Program for Suppliers of Asphalt."
c. ASTM D 5546 may be used instead of AASHTO T 44.
d. Note deleted.
e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 kPa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.
f. Tests without a force ductility clamp may be performed.
g. "PAV" means Pressurized Aging Vessel.