

SoyLei Innovative Products introduces SIP 1111, a distinctive soybean oil-based additive with zero VOCs that facilitates the inclusion of up to 50% Recycled Asphalt Pavement (RAP) in asphalt pavements. SIP 1111 achieves this by chemically rejuvenating the functionality of aged binders within the recycled asphalt, effectively binding with the asphalt to diminish asphaltenes aggregation and decelerate oxidation. This enhances the asphalt's resistance to cracking significantly. As a result, SIP 1111 stands out as an eco-friendly, FDA-approved (for food contact), and patented option that offers a highly efficient and cost-effective alternative to conventional polymers and rejuvenators in the asphalt industry.

SIP 1111 CHARACTERISTICS

OXIRANE OXYGEN	6.8% min
IODINE VALUE	1.5%
ACID VALUE	0.5% max
COLOR (APHA)	150 max
MOISTURE	0.10 max
MOLECULAR WEIGHT (APPROX.)	1000
SPECIFIC GRAVITY	0.995
CAS NO.	8013-07-8

PRODUCT USES:

- Compaction Aid
- Hot mix additive
 - Cracking resistance
 - Rutting resistance
 - Aging resistance
 - ΔT_C Performance

PACKAGING SIZE:

- 55-gallon Drums
- 275-gallon Tote
- Tanker (45,000 lbs.)
- Rail (185,000 lbs.)

ADDITIVES PERFORMANCE IN ASPHALT:

Project in Indiana

Dosage %	Base Binder	RAP %	Modified Binder	Ideal CT	IFIT	DCT at -22°C	Rut depth 20,000 Pass
0	64-22	25%	70-22	85	1.85	375	2.2
4.3	64-22	40%	64-28	110	12.6	506	5.2

Project in Iowa

Dosage %	Base Binder	RAP %	Modified Binder	Ideal CT	IFIT	DCT at -28°C	Rut depth 20,000 Pass
0	58-28	45%	70-22	77	10.4	332	-
2.8	58-28	45%	64-28	114	14.2	477	-

Project in Minnesota

Dosage %	Base Binder	RAP %	Modified Binder	Ideal CT	IFIT	DCT at -28°C	Rut depth 20,000 Pass
0	58-28	30%	64-28	30	8	305	-
0	58-28	40%	58-28	30	6.5	300	-
4.2	58-28	40%	52-34	70	15	350	-

STORAGE AND HANDLING:

Shelf Life: 2 years with proper storage and handling.

Materials for Construction: Compatible with carbon steel, 304/316 stainless steels, polyethylene, PVC, CPVC. Temperature limits for non-metallic materials should be considered.

Storage Conditions: Ambient temperatures are ideal. Stratification occurs below 80°F; preventable by heating above 100°F with mild agitation.

Heating Methods: Use low-pressure steam (<15 PSIG) or electric blanket heating. Keep surface contact temperature with SIP 1111 below 250°F.

Temperature Tolerance: Short-term exposure to 350°F is acceptable, but long-term exposure leads to degradation and discoloration.

Pump Selection: Centrifugal, gear, or diaphragm pumps suitable. Gear pumps preferred for handling near stratification point.

FDA Clearance of SIP 1111 Epoxidized Soybean Oil

The use of SIP 1111 is sanctioned by the U.S. Food and Drug Administration for food packaging applications under section 21 CFR 181.22.

