

SIKALASTIC PUMA TRAFFIC SYSTEMS SIKALASTIC 2850/2900

BUILDING TRUST

AGENDA

01	Introduction to 2850FS,2900FS and MMA Chemistry
02	Surface Preparation / Detailing
03	Mixing Processes / Installation Tools
04	Installation Techniques



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SIKALASTIC PUMA TRAFFIC SYSTEMS



Sikalastic 2850 & Sikalastic 2900

Exceptional protection for traffic decks requiring superior longterm durability in challenging conditions



PROJECT CHALLENGES OF VEHICULAR TRAFFIC BEARING AREAS

- Aggresive wear areas
- Return to service
 - Minimize project down time
 - Reduce revenue loss
- Wide temperature application
 - Reduce impact of project seasonality
- Sustainability
 - Ensure longer lasting solutions
 - Reduce installation complexity \rightarrow reduce callbacks







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Protecting and improving parking structures in a profitable way

PUMA TRAFFIC SYSTEMS

Common areas of aggressive wear

- Entrance and Exit ramps
- Helixes
- Ticket Spitter areas
- High turn radiuses
- Snow plowed decks
- Loading docks
- Utility rooms





History





Systems

- Polymer Concrete
- Crack Sealer
- Flooring Systems
- Traffic Bearing Membranes











Chemistry

Powder Hardener (Dibenzoyl Peroxide) BPO

- One hardener for all materials
- Amounts based on substrate temperature
- Material Temperatures will influence

	Sikalastic Traffic 2900 Mix Chart					
°F	°C	Sikalastic P 280FS with Sikalastic 908FS	Sikalastic P281FS with Sikalastic 908FS	Sikalastic M 290FS	Sikalastic TC 297FS	Sikalastic TC 299FS
°30	°-1	6	14.5	8	11	11
°33	°1	5.5	14	8	11	11
°35	°2	5.5	13.5	7.5	11	11
°40	°4	5.25	13	7	11	11
°45	°7	5	12.5	6.5	9	9
°50	°10	4.5	11.5	6	8.5	8.5
°55	°13	4.25	10	6	7.5	7.5
°60	°16	4	9	5	6.5	6.5
°65	°18	3.5	8	5	5.5	5.5
°70	°21	3.25	7	4.5	4.5	4.5
°76	°24	3	6	4.5	4	4
°80	°27	2.75	5.5	4.5	3	3
°85	°29	2.5	5	4.5	2.5	2.5
°90	°32	2.25	4.5	4.5	2	2



Chemistry





Chemistry





A Paraffin-film on top of every applied layer is essential to prevent redissolving of aerial oxygen into the resins.



Curing Process

Chemistry

- Epoxies and polyurethanes cure via a cross-linking mechanism
- Long polymer chains are formed first
- A secondary reaction links the polymer chains together
- The more cross linking, the more chemical resistant and brittle





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Curing Process

Chemistry

- MMA monomers are catalyzed using dibenzoyl peroxide (BPO)
- The BPO "activates" the MMA molecules
- Once "activated", they seek their nearest neighbors and immediately polymerize







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Chemistry

Chemical Bonding between coats means no bond lines.





Chemistry

- Odor
- Methyl Methacrylates (MMA), as supplied, have a pungent odor
 - The odor threshold is very low only 83 ppb
 - The odor is only present during curing process and is not harmful
- Flammability:
 - Flash Point of 50°F (10°C)
 - No open flames
 - No smoking!
 - Proper ventilation is required for interior application
 - Type "B" fire extinguishers required

Safety awareness by installer ensures proper installation – bidders should be trained





SAFETY CONSIDERATIONS & ODOR MANAGEMENT

PPE:

- OSHA lists allowable MMA concentrations:
 - TWA, STEL, etc
 - Organic respirators required if levels are exceeded

Engineering Controls:

- High volume fans and tubing to evacuate work area
- Plastic sheeting enclosures
- Must be cognizant of air intakes and adjacent areas
- How to Measure?
 - Portable gas detection meters





SAFETY CONSIDERATIONS & ODOR MANAGEMENT





SAFETY CONSIDERATIONS & ODOR MANAGEMENT

Contractors Role:

- Have a documented safety plan with SDS's
- Have crew fit tested and organic respirators on site
- Have a portable gas detection meter with MMA tubes
- Ensure workers can effectively discuss safety if needed
- Have the owner post signage and communicate work being completed

MMA basic handling safety

<u>Elammability_MMA</u> is classified as a flammable liquid by the U.S. D.O.T. It has a flash point of approximately 50° F. This is the temperature at which vapor directly above a liquid will ignite when exposed to an ignition source. In comparison, the flash point for acetone is 0° F. and gasoline is -35° F. Any sources of ignition must not be allowed in areas where Sikalastic MMA's is present. This includes lit cigarettes, open flame heaters, pilot lights, burners, and other equipment that would contain an open flame. Fire Extinguishers (Type B) should be stationed at both the mix station and any storage areas.

Toxicity Maximum exposure limits have been established by OSHA at 50 ppm over an 8 hour period (TWA) and short term (<u>STEL) Safety</u> tests of Sikalastic MMA's materials established that it is highly unlikely vapor concentrations will ever exceed the legally permitted values if used properly. Consult product MSDS for more information on exposure limits. If there is a concern about levels a, MMA gas detector should be used to measure exposure levels.

<u>Odor Sikalastic MMA's resins have a discernible odor</u>. This smell makes people aware of MMA's presence. It does not make Sikalastic MMA's products dangerous to humans or animals. Once the product is fully cured (one to three hours), this odor disappears completely. MMA has an extremely low odor threshold of 83 ppb (parts per billion). This means just a small amount of resin can give off a strong odor. In comparison many other commonly used solvents, for example acetone, have an odor threshold which is almost 1000 times higher. These materials require a larger amount of material to give off the same amount of odor.

On Site Precautions. The use of proper safety equipment is recommended to maintain a safe work site. Safety Glasses & Gloves should be worn when handling MMA materials. When working with fillers such as <u>Aerosil</u>, an approved dust mask should be worn. Contact lenses should be avoided when working with MMA. If lenses come into direct contact with MMA <u>resin</u> they can be subject to softening. An organic vapor mask can be worn if the odor threshold is surpassed.



SIKALASTIC PUMA TRAFFIC SYSTEMS



Sikalastic 2850 & Sikalastic 2900

Exceptional protection for traffic decks requiring superior longterm durability in challenging conditions



SIKALASTIC PUMA TRAFFIC SYSTEMS

SIKALASTIC[®] 2850



SIKALASTIC[®] 2900

Sikalastic 2850 & 2900 Surface Preparation

Concrete Repair Mechanical Preparation Joints and Cracks Terminations **Concrete Repair**

Condition Assessment









Concrete Repair

Cementitious

- SikaEmaco T 1060 Repair Mortar
- SikaEmaco T 1061 Repair Mortar
- SikaQuick -1000





MMA

SikaEmaco -6000







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Concrete Repair

Cementitious

- Square cut edges with concrete saw
- 1/2" minimum in depth
- Avoid featheredges (no gypsum-based levelers)
- Keep patches square or rectangular shaped





Sikalastic 2900

Concrete Repair

- SikaEmaco -6000
 - 15 -20-minute working time
 - Requires Primer
 - 2-part Liquid and Powder component
 - BPO/Initiator is in the powder
 - Must be primed
 - Chemical bond between coating and repair
 - Re-coat 1 hour
 - 1/8" to full depth







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22.04.2025

Sikalastic 2900

Concrete Repair

SikaEmaco -6000

Aggregate Extension

REPAIR THICKNESS FEET	EXTENSION	AGGREGATE	LBS OF	SQUARE FEET	CUBIC
IN (MM)	% BY WEIGHT	GRAIN SIZE	AGGREGATE		
1⁄2 (3.2)	_	_	_	29.3	0.30
1/4 (6.4)	_	_	_	14.6	0.30
1/2 (12.7)	10	1/16" to 1/8"	4	7.9	0.33
3/4 (19)	25	1/16" to 1/8"	10	5.9	0.37
1 (25.4)	50	3/16" to 3/8"	20	5.4	0.45
11/2 (38)	75	¾16 " to %"	30	4.2	0.52
2 (50.8)	100	1/4" to 3/4"	40	3.5	0.59



Surface Profile

CSP Standards From CSP-3 to CSP-5

- Refer to the ICRI Guideline 310.2R-2013.
 International concrete repair institute
- Selecting and specifying concrete surface preparation for sealers, coatings, and polymer overlays.
- Website: <u>www.icri.org</u>





CSP Profile chips



Shot Blast / Grinding



Ride on Shot-blaster

 Always remove excess shot from substrate surface



INTERNAL

Shot Blast / Grinding

Areas inaccessible to shot blasting must be prepared by:

- Grinding
- Needle gun
- Sand blasting





Detailing

Cracks and Joints

- Always tool sealant flush with surface
- Sikaflex NP2/SL2
- Sikalastic M 290 FS 2900 only
 - Sikalastic P 280FS/908FS needed





Sikalastic 2900

Detailing

Cracks and Joints

- Always receive stripe coat
- Must Prime with Sikalastic P 280FS/908FS
- 25 mils WFT of M 290FS Basecoat
- Typically, 4" wide Stripe coat



Non-moving joints and cracks > 1/16'' require routing to a minimum $\frac{1}{4}''$ by $\frac{1}{4}''$



SIKALASTIC 2850 - SYSTEM COMPONENTS

Sikalastic 2850

- Sikalastic M 270 NP Primerless Basecoat (polyurethane)
 - Incorporates Part A + Part B
- Sikalastic TC 275 Intermediate Coat (polyurethane)
 - Incorporates Part A + Part B
- Sikalastic TC 299FS Top Coat (methyl methacrylate MMA)
 - Incorporates Sikalastic 918FS hardener + Pigment PGM 155 Series

SIKALASTIC[®] 2850





SIKALASTIC 2850 – APPLICATION STEPS





Basecoat

Sikalastic M 270 NP

- Appx 20-minute working time
- 25 wet mils / 60 sq.ft./gal.
- 3 4 hr cure
- Notched Squeegee and Backroll







Wear Coat

Sikalastic TC 275

- Appx 20-minute working time
- 20 wet mils / 80 sq.ft./gal.
- Notch Squeegee and Backroll to aggregate to refusal





Topcoat

Sikalastic TC 299FS

- 10 -15-minute working time
- 20 mils 80 sqft/gal.
- Roller Applied, or notched squeegee, and backroll
- 45-60 Minute cure
- Open for traffic 2 hours after topcoat has cured



Sikalastic® 918 FS is the catalyst for Sikalastic® TC 299 FS at all temperatures. Chart details amount of Sikalastic® 918 FS required, based on temperature, added to one (1) gallon of Sikalastic® TC 299 FS resin.

<u>°F (°C)</u>	Sikalastic [®] 918 FS (fl. oz.)
°30 (°-1)	11
°33 (°1)	11
°35 (°2)	11
°40 (°4)	11
°45 (°7)	9
°50 (°10)	8.5
°55 (°13)	7.5
°60 (°16)	6.5
°65 (°18)	5.5
°70 (°21)	4.5
°75 (°24)	4
°80 (°27)	3
°85 (°29)	2.5
°90 (°32)	2



TECHNICAL DATA GUIDE

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SYSTEM DATA SHEET

Sikalastic[®] Vehicular Traffic 2850

HYBRID POLYURETHANE-METHYL METHACRYLATE WATERPROOFING, TRAFFIC-BEARING MEM-BRANE SYSTEM

PRODUCT DESCRIPTION

Sikalastic[®] Vehicular Traffic 2850 is a fluid-applied, hybrid polyurethane-methyl methacrylate waterproofing system. It allows for fast turnaround time while maintaining durability.

Sikalastic® Vehicular Traffic 2850 is composed of:

- Sikalastic[®] M 270 NP a two-component, fast-curing polyurethane base coat
- Sikalastic[®] TC 275 a two-component fast curing aromatic polyurethane top coat
- Sikalastic[®] TC 299FS a solvent-free, two-component, 100% reactive methyl methacrylate (MMA) resin
- Sikalastic[®] 918FS a powder hardener that initiates the MMA cure
- Sikafloor PGM 155 Pronto nowder nigment

CHARACTERISTICS / ADVANTAGES

- Two-component system utilizes flexible polyurethane and world-class MMA technologies
- Hybrid system provides waterproofing capabilities as well as faster setting times, even in cooler climates, to help reduce downtime
- High strength with excellent bonding capabilities to a variety of concrete substrates
- Seamless waterproof membrane helps protect concrete from freeze/thaw damage; protects occupied spaces below from water damage and has no seams that may result in leaks
- Excellent chemical and chloride resistance helps protect against common parking deck chemicals including gasoline, diesel fuel, oil, alcohol, ethylene glycol, de-icing salt, bleach and cleaning agents as well as chloride intrusion



SIKALASTIC 2900 - SYSTEM COMPONENTS

Sikalastic 2900

- Sikalastic P 280FS or P 281FS Primer (methyl methacrylate MMA)
 - + Sikalastic 908 & incorporates Sikalastic 918FS hardener
- Sikalastic M 290FS Basecoat (Hybrid MMA/Polyurethane)
 - + Sikalastic 918FS hardener
- Sikalastic TC 297FS Intermediate Coat
 - + Sikalastic 918FS hardener + Pigment PGM 155 Series
- Sikalastic TC 299FS *Top Coat*
 - + Sikalastic 918FS hardener + Pigment PGM 155 Series

SIKALASTIC[®] 2900





Mixing Tools

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Measuring by volume



Surface thermometer



Jiffy, Shear mixing blades



Notched Squeegee



System Installation

Bond Tests

- Sand and resin Mix
- Pre-Priming
- Sand sieve size
- 4-5 parts sand
- Placed every 500 –1,000 sq.ft.
- Locate in strategic locations





SIKALASTIC 2900 – APPLICATION STEPS





Priming

Sikalastic P 280FS/908FS Additive or P 281FS/908 Additive + appropriate amount of Sikalastic 918FS

- 10 -15 minute working time
- 45 min 1 hr cure
- Always use 908FS additive
- Cure to tack free satin finish
- Primer all detailed areas prior to installing base coat.
- MUST not exceed 100 sq ft/gallon or <16 wet mils





°-1

°4

°7

°10

°13

°16

°18

°21

°24

°27

°29

°32

°30 °33

°35

°40

°45

°50

°55

°60

°65

°70

°76

°80

°85

°90

Sikalastic P 280FS

with Sikalastic

908FS

6

5.5

5.5

5.25

5

4.5

4.25

4

3.5

3.25

3

2.75

2.5 2.25 11.5

Basecoat

Sikalastic M 290FS

- 10 -15 minute working time
- 50 mils / 32 sqft/gal.
- 1 1.5 hr. cure
- Use notched Squeegee application
- Easy to Mix and place
- Backroll only if necessary
- Do not walk in material with spikes





Waterproofing innovation that does more with less



Wear – Intermediate Coat

Sikalastic TC 297FS

- 10 -15 minute working time
- 20 mils 80 sq.ft./gal.
- 45 min 1 hr cure
- Roller Applied, or Notched Squeegee / Back-Roll





Topcoat

Sikalastic TC 299FS

- 10 -15 minute working time
- 20 mils 80 sq ft/gal.
- 45 min 1 hr. cure
- Roller Applied, or notched squeegee, and Back-Roll





TECHNICAL DATA GUIDE



SYSTEM DATA SHEET

Sikalastic[®] Vehicular Traffic 2900

FAST CURING METHYL METHACRYLATE / POLYURETHANE WATERPROOFING, TRAFFIC-BEARING MEMBRANE SYSTEM FOR VEHICULAR AREAS

PRODUCT DESCRIPTION

Sikalastic[®] Vehicular Traffic 2900 is a fluid-applied polyurethane-modified methyl methacrylate waterproofing system. The rapid cure characteristic of the system allows for full system cure within a single day – minimizing facility down time. Sikalastic[®] Vehicular Traffic 2900 bridges cracks at low temperatures and can be opened to traffic in just one hour after final application.

CHARACTERISTICS / ADVANTAGES

- Blend of polyurethane and methyl methacrylate technologies provides extreme durability and abrasion resistance while maintaining crack-bridging properties
- Rapid cure allows for quick installation with minimal facility downtime
- Low temperature cure extends application season
- Seamless, impervious coating that is easy to clean and maintain
- Flexible system that withstands temperature swings



PROJECT TURNAROUND TIMELINES

Sikalastic 2500

- 5 hours primerless basecoat
- 5 hours intermediate coat
- 5 hours topcoat
- 24 hours to sit

Sikalastic 2850

- 4.5 hours primerless basecoat
- 4.5 hours intermediate coat
- 1 hour MMA topcoat
- 2 hours to sit

Sikalastic 2900

- 1 hour primer
- 1 hour basecoat
- 1 hour intermediate coat
- 1 hour topcoat
- 1 hour to sit









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STRONG UVPS OF SIKALASTIC 2900

- The layers tell a story
 - Not all MMAs are equal
 - Layer/system thickness optimization
- Outstanding crackbridging capabilites (based on ASTM C 1305)
 - Not all competitor pass industry testing
- No field added fillers
- BPO / Pigment added by volume not weight
- Recoat opportunities Sikalastic P 281 FS MMA-Primer
- 3rd party validation, resides within ASTM C-957





Issued to: Master Builders Solutions Product: MasterSeal 2850

ASTM D 412: Tensile Strength of Top Coat MasterSeal TC 275 Top Coat: Tensile Strength: 3,270 psi / Elongation: 30% MasterSeal TC 299FS Top Coat: Tensile Strength: 1,194 psi / Elongation: 35%		
ASTM D 4541: Adhesion of Base Coat Pass 🗾 MasterSeal M 270 NP Pull-off Adhesion: 418 psi		
ASTM D 4060: Abrasion Resistance of Top Coat MasterSeal TC 275 Top Coat: Abrasion Resistance: 61 mgms loss – mgms loss/1,000 cycles MasterSeal TC 299 FS Top Coat: Abrasion Resistance: 50 mgms loss – mgms loss/1,000 cycles Validation Date: 10/24/22-10/23/27		
No. 2851—10241023 Copyright © 2022		
DECK COATING VALIDATION		

SEALANT WATERPROOFING & RESTORATION INSTITUTE

Issued to: Master Builders Solutions Product: MasterSeal 2900

DN	DECK COATING VALIDA www.swrionline.org	ATION
2022	No. 2900—10241023 Capyri	ght © 2022
	Validation Date: 10/24/22-10/23/27	
~	ASTM D 4060: Abrasion Resistance of Top Coat MasterScal TC 297 FS Top Coat: Abrasion Resistance: 71 mgms loss – mgms loss/1,000 cycles MasterSeal TC 299 FS Top Coat: Abrasion Resistance: 45 mgms loss – mgms loss/1,000 cycles	Pass 🖌
~	ASTM D 4541: Adhesion of Base Coat MasterSeal P 200FS and MasterSeal M 290FS Pull-off Adhesion: 404 psi	Pass 🖌
~	ASTM D 412: Tensile Strength of Top Coat MasterSeal TC 297FS Top Coat: Tensile Strength: 1,778 psi / Elongation: 149% MasterSeal TC 299FS Top Coat: Tensile Strength: 1,092 psi / Elongation: 38%	Pass 🖌



SIKALASTIC PUMA TRAFFIC SYSTEMS (OPTIONS)

Heavy Duty System

	Product	Coverage Rate	Wet Mils		
1	Sikalastic P 280FS Primer	100 ft²/gal	16		
2	Sikalastic M 290FS Basecoat	32 ft²/gal	50		
3	Sikalastic TC 297FS Wearcoat	80 ft²/gal	20		
4	Sikalastic TC 299FS Topcoat	100 ft²/gal	20		
106 mils					

Extra Heavy Duty System

	Product	Coverage Rate	Wet Mils		
1	Sikalastic P 280FS Primer	100 ft²/gal	16		
2	Sikalastic M 290FS Basecoat	32 ft²/gal	80		
3	Sikalastic TC 297FS Wearcoat	80 ft²/gal	30		
4	Sikalastic TC 299FS Topcoat	100 ft²/gal	40		
176 mils					

TECHNICAL EXPERTISE IN SIKA

We have

- An understanding of industry needs around traffic coatings
- Established technologies that meet and exceed challenges
- Innovative research group pushing the boundaries of science
- Expert field service team meeting customer challenges
- In service projects spanning 10+ years utilizing methyl methacrylates (MMA) chemistry on parking garages



Over 30 years of proven performance



Muckleshoot Casino Parking Garage, Auburn, WA

Sikalastic Traffic 2850

- L1 parking garage
- **38, 000 ft2**
- **2024**



Karp Research Laboratories Boston Children's Hospital, Boston MA

Sikalastic Traffic 2900

- Phase 1 20,000 ft2
- Phase 2 20,000 ft2
- **2023 20244**



Sound Transit - Issaquah Park & Ride, Issaquah, WA

Sikalastic Traffic 2850

- Top level of garage
- 80,000 ft2
- **2023-2024**





1201 3rd Street, Seattle WA

Sikalastic Traffic 2850 & Sikalastic 2900

- 2900 Trash rooms
- 2850 loading docks
- 10,000 ft2
- 2022



Absolute Towers, Mississauga Ontario

Sikalastic Traffic 2900

- Parking Garage Primary Turns, Garbage laneways
- 15,000 ft2



11 Mariner Terrace, Toronto Ontario

Sikalastic Traffic 2900

- Below grade Parking Garage
- 10,000 ft2
- Phase 1: 3000 ft2
- Phase 2: 2500 ft2



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Kent Station, Seattle WA

Sikalastic Traffic 2850

• Parking Garage



WSU Fine Arts Parking Garage Pullman, WA

Sikalastic Traffic 2900

- Ramp Helixes
- **8,000 ft2**



Crystal Mall, Vancouver CA

Sikalastic Traffic 2850

• Parking Garage





1315 Bough Beeches Blvd., Mississauga, Ontario

Sikalastic Traffic 2900

- Garbage and move in rooms
- 1,200 ft2



363 Colborne St., London, Ontario

Sikalastic Traffic 2900 & Sikalastic Traffic 2850

- Critical turn areas in parking garage (3,200 ft2)
- Mechanical Room (900 ft2)



Renaissance Hotel Seatle, WA

Sikalastic Traffic 2900

- Garage Entry Ramp
- 2,000 sq ft
- **2024**



QUESTIONS







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