

POLYUREA

by VIP Germany

The new Generation in
Surface Coating and Joint Sealing



Industrial Adhesives



Coating Systems



Employees (Dubai + Munich) > 100

Annual sales in 2010

- Polyurea > 2.000 tons
- Adhesives > 1.000.000 cartridges
- 60% Export rate
- Represented in over 50 countries
- 30% growth rate p.a. for the last 5 years
- Privately owned company



Production facilities Dubai, UAE



Administration Munich, Germany



Production facilities Munich, Germany

- PDA - Europe
- Polyurethane Association India
- SSPC – Society of Surface Proctive Coatings
- Germany Water Partnership Group
- International Water Association
- various Chamber´s of commerce





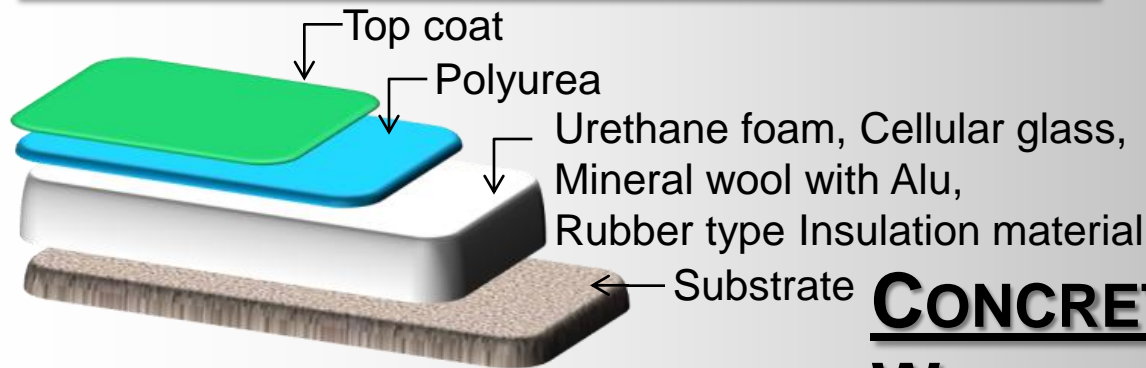
- Elastomeric thick film coating
- 2 liquid components (Part A + B)
- Mixing Ratio 1:1 (volume)
- Part A - Isocyanate Pre-Polymer
- Part B - Amine terminated resin blend
- Hot Spray & high pressure application with specialized equipment
- Rapid cure from liquid to plastic coating
- Outstanding physical and chemical properties
- Extremely Durable
- Designed to protect various surfaces, like concrete, steel, foam, GRP and more.



→ **POLYUREA** beats traditional coating technologies...

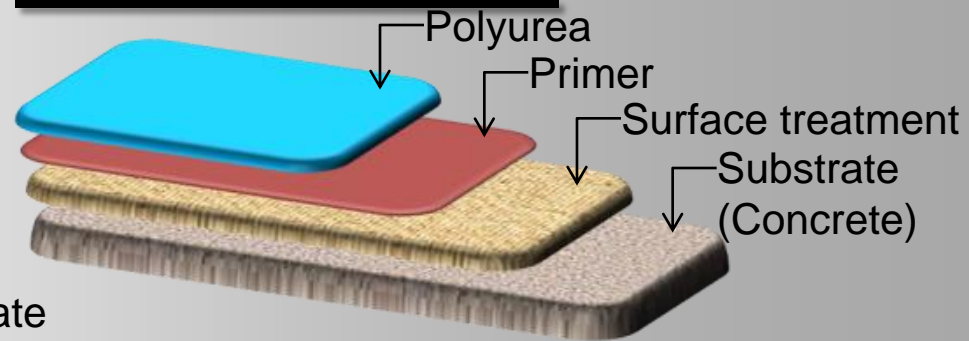
Properties	Polyurea VIP QuickSpray	Polyurethane	Epoxy
Working times	Extremely fast (5 seconds to 45 minutes)	Fast	Slow
Moisture sensitivity	No, moisture insensitive	Yes	Yes
Elongation	Upto 700%	1000%	Tend to get brittle
Superior tensile strength	Excellent	Good	Average
Abrasion resistance	Very good	Average	Good
Chemical resistance	Very good	Average	Excellent
VOC free	Yes	No	No
Temperature resistance	From -50°C to +150°C	From -30°C to +120°C	From -20°C to +110°C
Colour stability	Aromatics: average Aliphatics: 100% UV res. & col. stable	Average, yellowing	Average, yellowing
Seamless	Yes, unlimited thickness in one layer	Yes	Yes
Coverage	Average 1L = 1m ² = 1mm	Different	Different
Duration	Excellent	Good	Average

OUTSIDE INSULATION PROTECTION

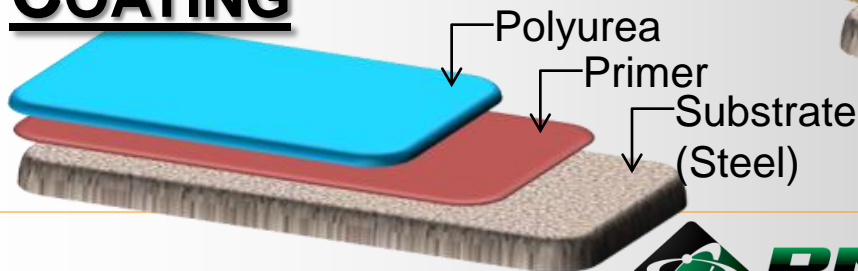


CONCRETE STRUCTURE

WATERPROOFING



STEEL ANTI-CORROSIVE COATING



WATER INFRASTRUCTURE



OIL & GAS / PETROCHEMICAL



ENERGY



CONSTRUCTION



TRANSPORTATION & CARGO



MINING



MILITARY & DEFENSE



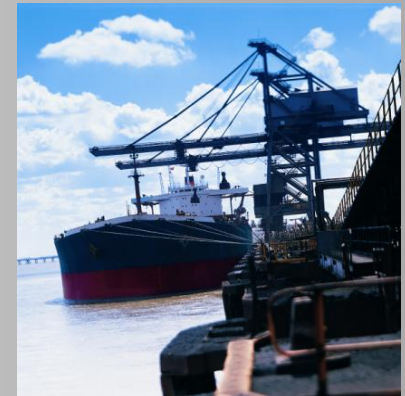
MARINE



MANUFACTURING INDUSTRY



- Protecting steel, aluminium and fiberglass above and in water
- Sound attenuation for engine compartments
- Non-skid application on decks
- Coating of Ballast Tanks
- Cruise ships, tankships, cargo ships, container vessels, jet-skis, buoys & fenders, etc.





Application Gold/Copper Mine Indonesia:

Abrasion & internal corrosion
protection lining/coating:

4 pcs. BALL - mills D 6 m x 13 m
2 pcs. SAG - mills D 12 m x 6 m



Extreme Protection & Significant Savings:

- Completion with VIP System: 3 days
- Former Rubber Linings: 7 days
- Savings according to client:
Approx. **USD 1.0 Mio/day** shut down time
(**Total Savings: USD 4.0 Mio**)



Extreme Protection



Screen machines



Sumps



Conveyor Belts



VIP LSE Coatings for Ease of Maintenance & reduction in Maintenance Cycle

- Internal & external
- Concrete & Steel
- Seawater
- Potable Water
- Sewage



- ❑ Steel pipes & pipelines
- ❑ Internal and external pipes with PU foam insulation
- ❑ Above or below ground & submerged
- ❑ Crude or refined
- ❑ Simple Field joints



- Steel, concrete & GRP
- Internal & external



- Helidecks
- splash & tidal zones
- Drilling rigs & process platforms
- Pilings & anchor structures
- Submersed flow lines & risers
- Separator tanks
- Vessel decks & hulls



- Sugar industry, Molassis
- Lubricants, Agrochemicals etc.
- Gypsum manufacturing
- Fertilizers
 - prilling towers
 - cristalizers
 - Premixers
 - degisters
- Storage tanks, salt domes
- Silos, i.e. flour





Utility Plant:

FRP pipes inlet/outlet of E-5601M/N.

Urea Plant: MP Section E-3502 A/B

FRP pipe branch nozzles for PSVs on PHE outlet pipe.



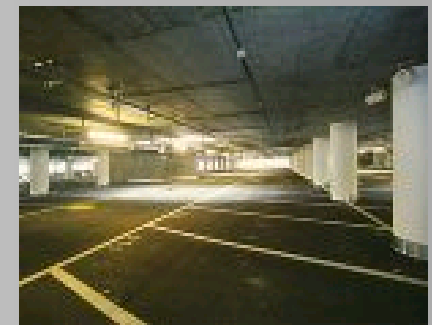
Ammonia Plant: 8"FG piping

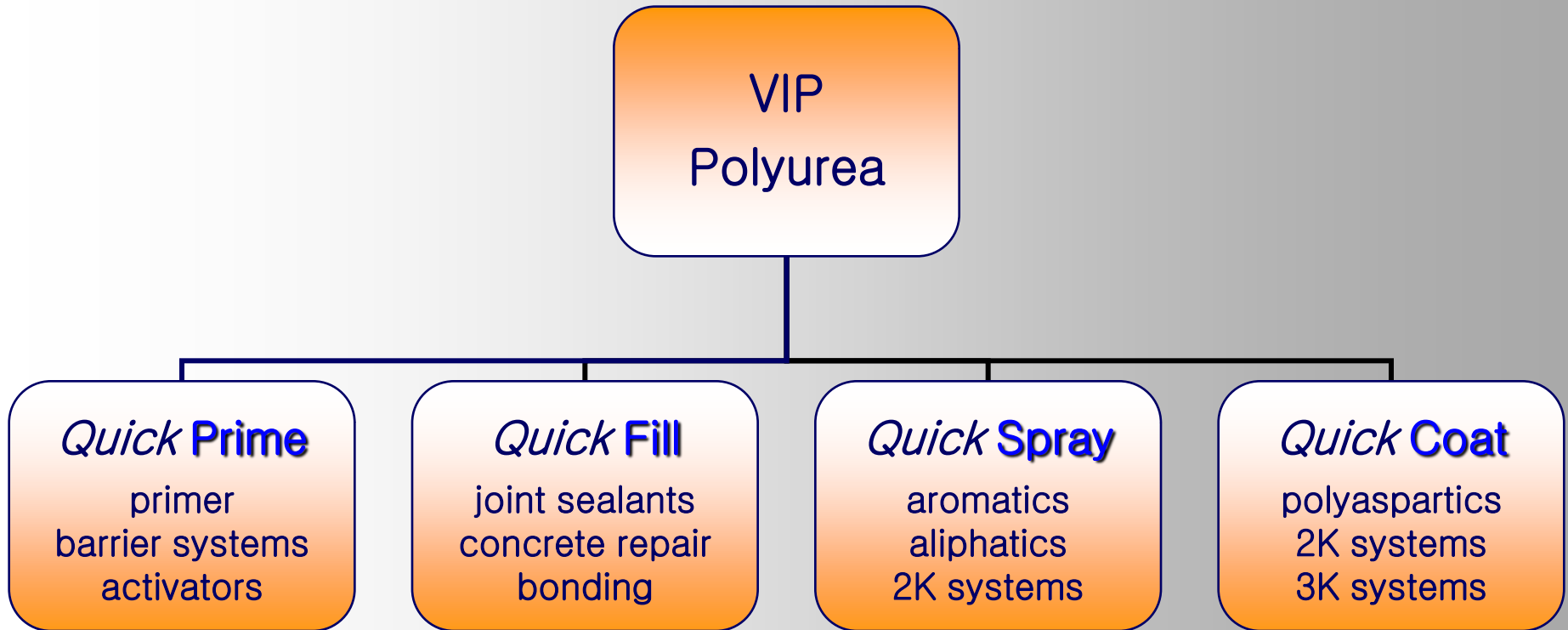
The line 8"FG-10004 located at west side of R-1201, corroded part of the 4" x 8" expander at the downstream of PV-1159.

- Water & Wastewater
- Power Industry



- Roofing / Waterproofing
- Industrial flooring
- Hangars & Carports
- Infrastructure, tunnels, bridges
- Power Industry
- Military / Defense
- Marine / Shipyard / vessels
- Hotel & Leisure park industry







POLYUREA
Quick Spray

A VIP POLYUREA
FOR EACH OF YOUR NEEDS

QUICK SPRAY – Industrial

- **Industrial Standard - Multi Purpose for a variety of applications**
 - Extreme crack bridging abilities (6,4mm @ -20°C)
 - Fire rating class B2 (DIN4102-1)
 - Resistance to root penetration (EN14416)
 - Sound absorbtion (>10dB (A) @ 2mm)
 - Lowest cost vs highest physical properties
-
- Industrial & manufacturing facilities, storage, load and high traffic areas
 - Wastewater treatment, manholes, sewer-lining
 - Secondary containment, Refineries, pipelines, tank coating,
 - Roofs, park decks, garages, ramps, gas-stations



QUICK SPRAY - Industrial W

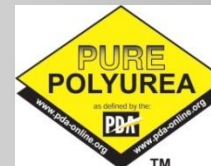
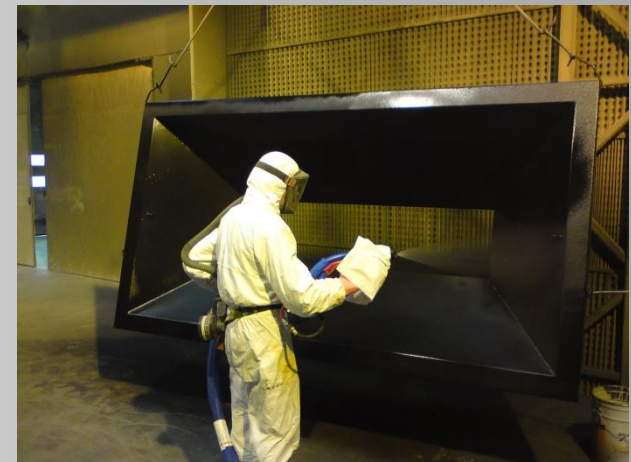
- Potable water approval (WRAS-UK – 23°C)
 - Certified by Singapore Accreditation Council
 - High chemical resistance
 - Great acid and microbial resistance
 - Resistant to caustic or corrosive chemicals/ gases/ solvents
 - Less expensive than previous GRP liners
-
- ➔ Portable water reservoirs, rain storage tanks
 - ➔ Swimming pools
 - ➔ Wastewater infrastructure, sewage plants, pipelines



QUICK SPRAY – *Industrial S*

- “S” Slow – delayed gel & set time – 30secs
- Slight levelling properties
- Pure Polyurea, fast, aromatic
- Fights the orange-peel-effect of faster systems

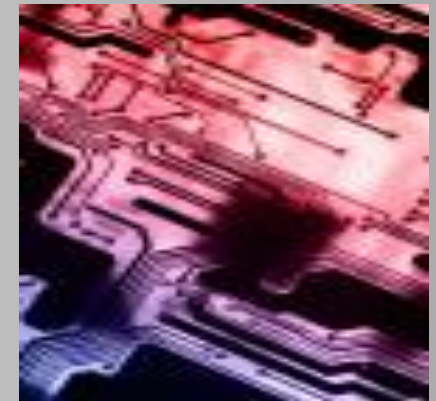
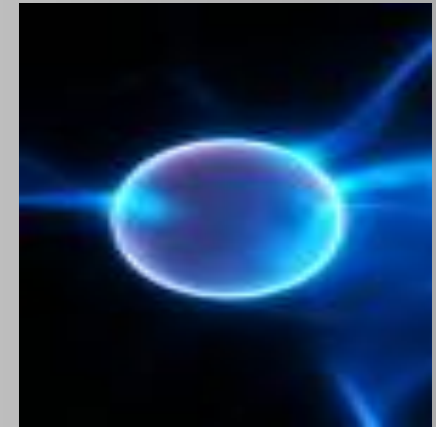
- ➔ Styrofoam sculpturing
- ➔ Wood application
- ➔ Flooring
- ➔ Steel coating



QUICK SPRAY – *Industrial AS*

QUICK Spray – *Industrial EC*

- Anti Static, $\leq 10e+09$ bzw. $10e+08$ [Ω]
- Electrically Conductive, $\leq 10e+06$ [Ω]
- For very sensible areas
- Petrol / Gas stations
- Clean rooms/ Dust free rooms
- Petrochemical refineries, secondary containment
- Mining
- Pipeline coating



QUICK SPRAY - *Industrial LSE*

- **LSE: Low Surface Energy**
- **Anti-stick coating**
- Pure Polyurea, fast, aromatic
- High end performance
- High pricing
- Truck bedliners
- Mining, belt conveyor, funnels
- Cement industry, concrete moulds



QUICK SPRAY - *Industrial AL*

- AL: Aliphatic base coat system
- 100% UV & colour stable
- One working step – no top coating
- Pure Polyurea, fast, aliphatic
- Higher pricing than aromatic systems
- Food safety (for direct and indirect contact)
- According to the FDA (Food and Drug Administration – US)
- ➔ Food industry, production areas, cold storage
- ➔ Food transportation
- ➔ Pools, theme parks & leisure parks
- ➔ Windmill blades and poles



QUICK SPRAY – *eco line*

- Polyurea Hybrid, aromatic, fast
- Lower raw material cost & selling price
- Has lower general physical properties

- QuickSpray eco - 270% - ShD 40
- QuickSpray eco Flex - 450% - ShD 40
- QuickSpray eco Soft - 385% - ShA 60 - rebound >58%

- ⇒ Roofing
- ⇒ Wear and tear part, platforms
- ⇒ Vibrating stoker, edge-guard, belt-conveyors



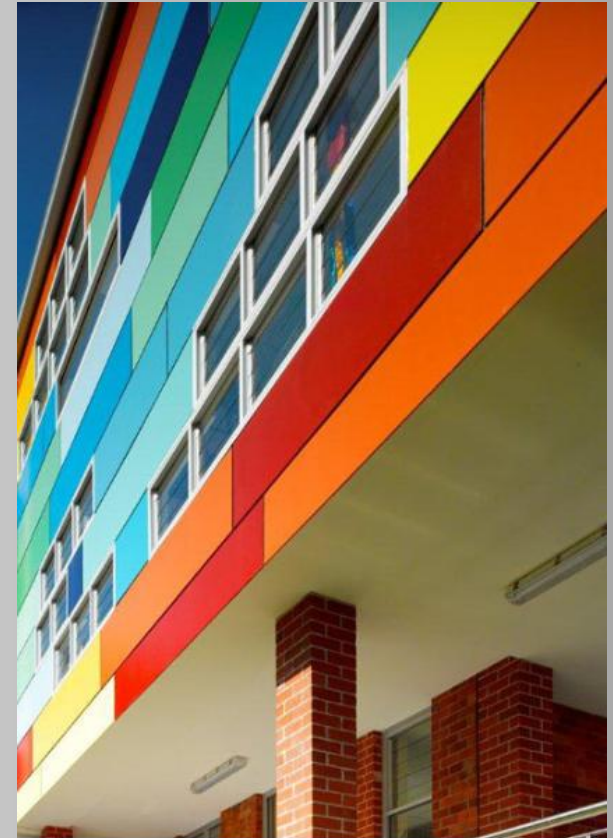
Hot Spray - High Pressure Equipment required

- Plural component proportioning units
- High pressure at app. 2200 psi (155 bar)
- Heats material to approx 70°C
- Minimum heater hose length 30m (up to 100m available)
- Generator required if using in isolated area where no main power is available: 27 KVA, 3 phase, 380V
- Compressor requirement – 28 liters/sec. @ 6-9 bar constant delivery pressure (750 cfm (cubic feet/Minute), 100-120 psi)
- Recommended spray gun – Fusion manual purge & air purge guns
- Minimum 3 persons per team
 - Team leader, Applicator, Labourer



QUICK Coat – Polyaspartic *line*

- Pure Polyurea & Polyester, slow system
 - Bright & Aesthetically pleasing Finish
 - 100% UV & colour stable
 - Ease of Maintenance
 - Abrasion resistant
-
- flexible, good physical properties
 - Applied at lower DFTs (app. 0,25mm)
 - Applied by airless spray, brush or rollers
 - No heating required



Rejuvenating resorts timber decks

Polyaspartic QuickCoat Base Protect Crystal (Clear):

- Protection of wooden teak panels
- Furniture protection
- Prefab bathrooms
- Shiny and matt finish available



Giving new lease of
LIFE to your timber
structures





- ❑ Various Standard colors
- ❑ All colour variants as per app. RAL codes possible
- ❑ Intense luminescent colours (only up to a certain degree)
- ❑ Note: Base coat should have lighter color than top coat

Cold Spray – Low Pressure

NEW

- Equipment required:
 - Low pressure proportioning unit
 - Lower costs than high pressure units
 - Cartridge guns 125 psi / 6-8 bar air driven with no Power required
- Where to use:
 - Small application areas (up to 20m²)
 - Repair & maintenance project
- Key points:
 - Lower physical properties than high pressure





**POLYSOLAR – UV Technology
- Extremely durable & UV cured**



POLYSOLAR – UV Technology - Extremely durable & UV cured

- ❑ UV curing repair patch – GRP
 - ❑ Easy application – cut, peel and stick – finished
 - ❑ Extremely durable in aggressive environments
 - ❑ Flexible and waterproof
 - ❑ Weather- and UV resistant
 - ❑ Can be drilled, tapped, sanded and painted
 - ❑ Resistant against chemicals, solvents and oils
 - ❑ Resistant against corrosion & abrasion
 - ❑ Temperature resistant from -40°C to +200°C
 - ❑ No shrinkage or expansion during the application
 - ❑ Bonds to most surfaces
 - ❑ Fast curing (5 minutes @ sunny environment)
-
- ❑ 150x 75mm, 1,2mm tickness
 - ❑ 150x 225mm, 1,2mm tickness
 - ❑ 300x 225mm, 1,2mm tickness





INSULATION PROTECTION

- waterproofing
- impact resistance





PHARMACEUTICAL PLANTS





**OFFSHORE
INSULATION PROTECTION**



Pressure Resistance Testing

@ Wood Group Engineering to determine breakdown point of Poly Solar to resist internal pressure held @ 2,100 PSI with no problems



Thank you for your attention!



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