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**REDANATIONAL** co

# PROFILE

Established in 1987 **REDA NATIONAL CO.** foreseeing a substantial demand for products and services related to the road safety industry in the Kingdom of Saudi Arabia. Initially concentrated on the production of Thermoplastic Road Marking Materials (TRMM'S) specifically for new road construction and maintenance projects initiated by and under the auspices of the Saudi Ministry of Transport (MOT), currently aiming to develop most recent types of long life and eco-friendly types of marking materials.

To name few of them are cold plastic, two component and epoxy paints etc. During the 1990's as part of a planned diversification program to expand our product range, **REDA NATIONAL CO.** commenced the production of reflective aluminum road studs conforming to the BS 873 Part 4 specifications and cationic bitumen emulsions under ASTM D2397 specifically targeted at the preventive road maintenance sector relating to the application of slurry seal and micro surfacing systems. To ensure the quality conformance of our product range, stringent testing and monitoring have been established.

**REDA NATIONAL CO.** operates under the current ISO 9001-2008 Quality Management System (QMS), under which all records relating to the inspection and testing of incoming raw materials, manufacturing procedures and outgoing finished products are documented and are fully traceable for inspection purposes if required by outside agencies. Under future vision of energy needs **REDA NATIONAL CO.** is under taking Solar division under wick **REDA NATIONAL** not only focusing on Power generation by solar but bringing many important Products that are Solar driven. Like Solar Air Conditioners, refrigeration Systems etc.





# ROAD MARKING MATERIAL

## REDA THERMOPLASTIC YELLOW PAINT

**REDA THERMOPLASTIC DIVISION** was founded in 1987. The division specializes in producing almost every form of Thermoplastic Road Marking material and is a major contract supplier to MOT and Road Marking/Highway construction and maintenance contractors within the Kingdom and overseas. The plant is currently producing around 20,000 tons per annum of thermoplastic material with the capacity to double its output as demand increases.

- Binder: 18-22%
- Pre-mix Glass beads: 30% for AASHTO M249
- MOT K.S.A.: 20% for BS 3262

Flash Point carried out as a routine test to ensure safe handling and melting during pre-heater and spraying operation. Reda Yellow Paint road marking materials can also be produced to any required specifications. Non standard colors are also available upon request upon request.

## REDA THERMOPLASTIC WHITE PAINT

**REDA THERMOPLASTIC DIVISION** was founded in 1987. The division specializes in producing almost every form of Thermoplastic Road Marking material and is a major contract supplier to MOT and Road Marking/Highway construction and maintenance contractors within the Kingdom and overseas. The plant is currently producing around 20,000 tons per annum of thermoplastic material with the capacity to double its output as demand increases.

# GLASS BEADS

Swarco Glass Beads have technical applications in sectors as varied as:

- 1.** The leading - edge or traditional technology industries  
(cleaning and finishing of surfaces by controlled shot - blasting)
- 2.** Horizontal road markings  
(reflectivity of road surface markings so as to make them visible in the night)
- 3.** The conservation of historic buildings  
(cleaning of stone facades by dry projection)
- 4.** Industrial site fire-fighting (multi - purpose extenguisher powder)
- 5.** The manufacture of glass beads, wih diameters ranging from a few microns to several millimeters, entails very high-precision processing.

# MANUFACTURING EXPERTISE

Guaranteeing the user a constant quality for all types of glass beads implies fault - free manufacturing monitoring, basd upon the skills of the staff and the mastery of the processes.

# QUALITY ASSURANCE

At every stage of the manufacturing process, **REDA** submits its products to rigorous quality control:

- the grinding of the glass
- the sphericityof the glass beads
- the granulometric distribution
- surface treatment
- packaging, etc.

Sophisticated computerised control techniques (laser diffraction granulometer, digital image analyzer, etc) guarantee that the most rigorous standards and specifications are adhered to.

# PRODUCTS

Reflective glass beads are among the most economical means to create safer driving conditions. Only road markings that contain glass beads are night-visible. No beads - no visibility at night. When a car's headline beam shines on a striping which integrates glass beads, the striping seems to light up and gets much better visible at night. This effect is called retro reflection.

Glass beads are the result of a recycling process. Flat glass cullet (waste glass from window manufacturers) is crushed and transformed in furnaces into spherically shaped reflectors that become a road safety product.

**RASWA CO** bead products comply with National and International standards like:

- MOT-KSA
- AASHTO
- BS 6088
- EN

**The Glass Bead Types are:**

- MOT-KSA Pre-Mix
- MOT-KSA Drop-On
- AASHTO Designation: M 247 Type I: Pre-Mix
- AASHTO Designation: M 247 Type II: Drop-On
- BS EN 1424 Pre-Mix
- BS EN 1423 Drop-On
- BS 6088 Class A Pre-Mix
- BS 6088 Class B Drop-On
- FS. TT-B-1325C Gradation A Drop-On

**For more details, you can see every data sheet product in:**

[www.redanational.com/glassbeads.html](http://www.redanational.com/glassbeads.html)

# BITUMINOUS PRODUCTS

**REDA NATIONAL CO.** produces all grades of Cationic Bitumen Emulsion/Polymer Modified Bitumen Emulsion, and Cut-back Bitumen for road construction and preventive road maintenance conforming to ASTM BS and MOT-KSA specification.

## BITUMEN EMULSION

**REDA NATIONAL CO.** produces all grades of Cationic Bitumen Emulsion. These products are used for road construction and preventive road maintenance, Purposes.

### Example:

- Crack Filling
- Tack Coat
- Slurry Seal
- Micro Surfacing
- Sand Seal
- Chip Seal
- Double Seal
- Triple Seal
- Cape Seal

Quick set grades of emulsions are also available upon request, while not yet standardized, their use is rapidly increasing.

### Grades such as:

- MC-1
- MC-2
- MC-3 and MC-30
- MC- 70
- MC-250



## POLYMER MODIFIER BITUMEN

Manufacturer of Polymer Modified Bitumen as per SHRP (Strategic Highway Research Programme). Specification for road purposes.

**REDA NATIONAL CO.** has a most modern technique using high shear mill well capable of mixing all type of polymers, which gives a uniform dispersion of polymer into the bitumen. All the plants are fully automatic with computerized touch screen to control all the operations automatically in the production.

All storage tanks (digester) have mixing facilities to keep the material in homogeneous condition.

Grade produced: **REDA NATIONAL CO.** can produce all PG grades specified as per SHRP spec.

### Example:

- PG 70-10
- PG 76-10
- PG 76-16
- PG 70-16
- PG 76-22
- PG 70-22
- PG 82-10



# POLYMER MODIFIER BITUMEN

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All storage tanks (digester) have mixing facilities to keep the material in homogeneous condition.

Grade produced: **REDA NATIONAL CO.** can produce all PG grades specified as per SHRP spec.

**For example:**

- PG 70-10
- PG 76-10
- PG 76-16
- PG 70-16
- PG 76-22
- PG 70-22
- PG 82-10

# BITUMINOUS PRODUCTS

## EPOXY ADHESIVES

**REDA 2 COMPONENT EPOXY** adhesive is composed of 2 pack epoxy as per AASHTO M237 used for the installation of ceramic and plastic road markers.

**Product Name: REDA Two Component (A+ B) Epoxy Adhesive**

User: Bonding of raised pavement marker to carriage ways  
Specification: AASHTO M 237

1 : 1 by weight. Mix until uniform grey color is obtained.

### **Application method:**

Preferably with automatic mixing and dispensing equipment. Small quantities can be mixed by hand. Only mix the amount of material that can be used within the working life of the product. Use protective clothing and gloves.

## REDA FLEX SEALANT

**REDA FLEX** is a single component, hot applied petroleum based rubberized sealant which is used to seal, fill, crack and joints in Asphalt and concrete pavements. It is a homogeneous blend of bitumen, Styrene Butadiene Styrene copolymer (SBS), Synthetic latex and special additives. Reda Flex is supplied in solid form which when melted and properly applied, forms a highly adhesive and flexible compound that resists cracking in the winter and is resistant to flow in summer. Reda Flex can be used on highway, street and airfield pavements.

## GROUTING COMPOUNDS

**REDA GROUTING COMPOUND** is a tropical grade material with modified bitumen, specialized fillers and plasticizers.

The purpose is to use for the installation of REDA Aluminium Studs.

### **Technical Details of Grouting Compounds:**

- Density (Specific Gravity)	1.80 gms/cc
- Filler Content	72 - 75%
- Anti - twist Torque	150 n/sq.mm.
- Flash Point COC	220°C (Min)
- Softening Point	110° - 130°C
- Pouring Temperature	160° - 190°C
- Penetration @25C	5 - 15

### **Method of Application:**

The Bitumen must be heated in temperature controlled bitumen heater, fitted with an agitator, preferably motor drive. The temperature must be carefully controlled and agitation maintained to prevent settlement of the filler components. Material to be applied to stud cavity at pouring temperature of 160° - 190°C.

Under no circumstances should the grout be heated to over 230°C as this will result in hardening and loss of penetration which is a measure of elasticity.

### **Quantity: approximate quantities required for:**

- 10x 10 cms aluminium road stud	(+) - 150 grams/stud
- 15 x 15 cms aluminium road stud	(+) - 230 grams/stud



# ROAD FURNISHING PRODUCTS

## REFLECTIVE PRODUCTS

### **360° Reflective Glass Studs.**

Optical guide devices reflecting the incident light by means of reflector or reflecting surfaces. Track delimiters in night hours or in low visibility situation. Improving road safety. Its design hinders the settlement of dirt and are self-cleaning.

- Raised Pavement Marker (Solar)
- Raised Pavement Marker (Catseyes)
- Reflective and Non Reflective Ceramic Markers.
- Please contact us for more details.

## REFLECTIVE PRODUCTS

### **Ceramic Markers**

The pavement marker consists of heat-fired vitreous ceramic body with a heat-fired opaque, glazed top surface. The markers are manufactured from a mixture of intimately mixed clays, thoroughly and evenly matured with uniform shrinkage.

Some Ceramic Markers Products

Ceramic Markers with special - purpose glass elements for



# ROAD STUDS

The **REDA NATIONAL CO.** road studs have been designed and manufactured to withstand particularly difficult environmental and traffic conditions. The aluminum alloy used is one of those offering maximum impact resistance to vehicular traffic and to spread the impact load uniformly over the pavement surface.

Road studs are manufactured from aluminum ingots complying to BS 1490. The studs contain one or two glass element or prismatic reflective faces as required to reflect incident light from a single or opposite directions. The **REDA NATIONAL CO.** road stud shall be affixed to the pavement surface by means of a hole drilled into the surface and filled with REDA Grouting material prior to the insertion of the studs.

## Design and Fabrication

### Model 1 & 3

REDA / SF - DF / 10 x 10 cm

Size in mms: 100 x 100 x 20

Shaft Length in mm: 60

Slope of reflecting face: 60 degrees

Reflectors: Single plastic disc having 31 or 43 glass elements.

### Model 2

100 x 100 x 25 (as above) having 3 plastics discs each face, 7 highly reflective glass elements.

### Model 4 & 6

REDA / SF - DF / 15 x 15 cm

Size in mms: 150 x 150 x 25

Shaft Length in mm: 70

Slope of reflecting face: 60 degrees

Reflectors: Single plastic disc having 31 or 43 glass elements

### Model 5

Size in mms: 150 x 150 x 25 (as above) having 4 plastics discs each face, 7 highly reflective glass elements.



### Model 7

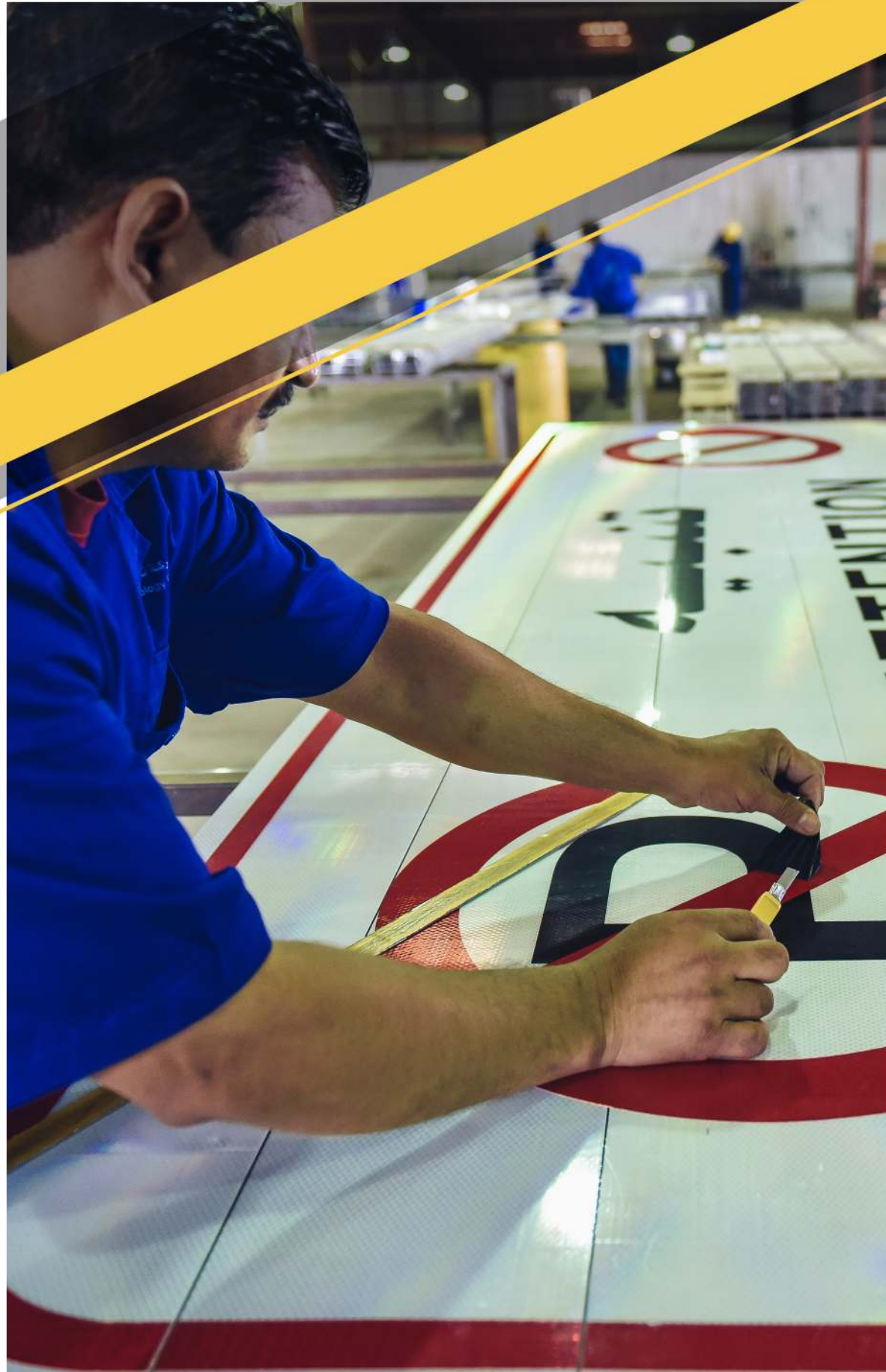
Size in mms: 10 x 10 cm , 43 reflectors.It has two neals to fit it on the ground.

### Material:

The body of the **REDA ROAD STUD** shall be formed from aluminium - silicate conforming to G - AL SI 13 Uni 4514, and having the following properties:

- Tensile strength, n/sq.mm: 200
- Elongation: 5-7
- 0.2% Proof Stress, n/sq.mm: 100
- Density (Specific Gravity): 2.65
- Melting Point C: 580
- Brinell hardness: 65 HB

43 glass elements 15 x 15 cms Plastic Insert disc in red color.



## ROAD SIGNS

**REDA NATIONAL** provides services in reflective products for Saudi Arabian market for all types of traffic signs.

R.T.C. is subsidiary of Reda Group for manufacturing of mainly road signs of all types according to the specification of Ministry of Transport, municipalities and traffic authorities- Kingdom of Saudi Arabia. R.T.C. can also supply any other signs as requested by the customer. The other products are being manufactured. In R.T.C. are highway and security fence and aluminium ingots.

### A. Warning, Regulatory Signs

(Standard Traffic Signs, Circles, Triangles, Octagon, Rectangles and Squares).

- Plate: Aluminium 3 mm thickness.
- Reflective: As required and according to M.O.T. (High intensity grade).
- Symbols: Silkscreen method.
- Application: By means of Vacuum / Heat applications.
- Paint: Back side of the signs painted Gray Stove enamel baked at 160° C.
- Mounting: Signs are mounted to posts by means of rear fixing channels and galvanized steel clamps. Channels are fixed electronically to the back side of the sign, so no bolts or screw head appear on the reflective face of the sign panels.

### B. Directional Signs

These type of signs are made according to the specifications of M.O.T - Kingdom of Saudi Arabia

- Panel : Extruded aluminium planks 200 mm modules (Black side not painted)
- Reflective: Super Engineering grade for background with high intensity grade legend.

### C. Single Post Support 3.5" (89 mm) Outside diameter with breakaway assembly.

### D. Ipe Post for Directional Signs

Posts for directional signs are made from IPE sections with break away assembly and fuse plate. The size and length of IPE posts calculated to stand 1.58 KN.M wind pressure for each sign.

The client provides R.T.C. with the sketches for the required signs and the cross section of the road at the location of the sign. R.T.C. Engineering Department will work out the shop drawings, IPE post size and footing calculations.

# ROAD SAFETY PRODUCTS

**GUARD RAILS** REDA NATIONAL CO. supplies highway guard rails for the roads network in Saudi Arabia, with its own manufacturing plant in 2nd Industrial City Riyadh.

**Our production is in accordance with the following norms:**

Galvanized Steel Guardrails:

- A.** Manufactured in accordance with AASHO M 180 or ASTM A 446/7: grade F.
- B.** Galvanized in accordance with AASHO M 111 by the hot dip process, both faces: zinc coating not less than 2 oz. per square foot (610 gm/m<sup>2</sup>) of sheet, double face exposed.
- C.** General specifications:
  - 1.** The sheet width used shall be not less than 47.3 cms and not more than 50cms, all tolerances included
  - 2.** After forming the guardrail shall have the following dimensions:
    - Width: not less than 310 mm.
    - Depth: not less than 81 mm.
    - Thickness: 2.74 mm
  - 3.** The galvanized beam shall be (12) gauge.
  - 4.** The yield point shall 50,000 PSI / Min.
  - 5.** The tensile strength shall be 70,000 PSI / Min.
  - 6.** The elongation shall be 12% Min.

**Galvanized Steel Posts:**

- A.** Manufactured in accordance with AASHO M 183 or (ASTM A 36)
- B.** Galvanized in accordance with AASHO M 111 or (ASTM 123) by the hot dip process, both faces.

**Galvanized Steel Bolts, Nuts and Washers:**

- A.** Manufactured in accordance with AASHO M 164.
- B.** Galvanized in accordance with AASHO A 153.

Guardrail Accessories and Barrier Reflectors:

Reflectors for Guardrail fence, new jersey barriers walls, show the course of the road at night. Guardrail reflectors are available for many different profiles of guardrails. Glass and plastic reflectors maintain their outstanding reflective intensity for many years, and it stand for optimum safety in road traffic at night. Economical models using high intensity sheet reflectors are also available.

## CRASH CUSION

The four vehicle restraint systems AIR-H110P; AIR-H100P, AIR-H80P and AIR-H50P constitute a family of crash cushions (also called impact attenuators) according to the European Standard EN 1317-3, composed by redirective crash-cushions of parallel sides, corresponding each member from the family to each one of the classes of speed in the European Standard EN 1317-2: 110 km/h, 100 km/h, 80 km/h and 50 km/h.

## CRASH CUSION V

The three vehicle restraint systems AIR-H110V; Air.H100V and AIR-H80V constitute a family of crash cushions (also called impact attenuators) according to the European Standard EN 1317-3, composed by redirective crash-cushions of concurrent non-parallel sides, corresponding each member from the family to each one of the higher classes of speed defined in the European Standard EN 1317-3: 110km/h and 80km/h.

## PLASTIC PRODUCTS

In Reda we have a wide variety of the best quality in the market which contributes to avoid many accidents every day

We have safety products like speed humps, cones, fences, etc.

Some Plastic Products.

For more details and products, please contact us.

- Speed Humps
- Traffic Delineators
- Cones
- Traffic Channelizer Drum
- Mirrors
- Fences

## THICKNESS AND REFLECTIVE METERS

## ZEHNTNER INSTRUMENTS

Zehntner GmbH Testing Instruments - The Swiss manufacturer of precision measuring and testing instruments for the quality control of all types of surfaces

Some Products of **ZEHNTNER**

For more details and products, please contact us.

## QUALITY MEASURE DEVICE

### SSI SURFACE PROFILE SYSTEM

The IRIS 2000 system is specially designed to determine the surface quality of newly constructed paved surface or existing road surfaces in terms of the international Roughness Index (IRI). However the instrument has more applications.

An accurate relative profile allows further indices to be calculated, and regions of interest of within the profile to be identified. Flexible data export allows post processing and reporting of data collected. The IRIS system's rugged construction and unique sliding action across the measurement surface allows fast, continuous and accurate operation. Its innovative design incorporating the sliding articulated beam together with its built-in powerful software analysis ensures repeatable IRI measurements.

#### **Advantages:**

- Long life diamond - ground precision pads.
- Extended continuous battery operation.
- Fast operating speed.
- Quick on-the-spot IRI determination.
- Good value and performance.
- Robust construction for field use.
- Proprietary mathematical algorithms for excellent correlation with relative profile.
- Flexible data storage medium using removable 32 MB ATA flash card.
- Retractable handle incorporating weather proof LCD display operator interface.
- Data files are compatible with U of Michigan Department of Transportation software.



# PREVENTIVE ROAD MAINTENANCE

## DURAPATCHER

The DuraPatcher Trailer mount is the best selling patcher in the industry. Simple to use and High performing. See the general guidelines below to match your Requirements:

1. You already have dump trucks in your fleet.
2. Your work consists of city county work and have few Height clearance issues.
3. Your budget will not permit a dedicated vehicle.
4. Productivity is important due to high volume of patches.

Technical Details

For more products and details, please contact us.

## THE DURAPACHER SYSTEM

**VENTURI FEED SYSTEM:** Utilizes virtually no moving parts in the delivery system. A high volume low pressure blower creates an airstream that both cleans the repair area and delivers the aggregate to the patch. No augers, conveyors or the other wear parts are required making the system the most reliable in the industry.

1. **CLEAN:** Air only to clear water and debris.
2. **PREP:** Air and emulsion on to coat repair area.
3. **FILL:** Gate opens allowing aggregate into air stream. Aggregate is coated at nozzle and injected into patch providing compaction.
4. **COVER:** Emulsion off, Aggregate covers patch to allow traffic and prevent tracking. Gate closes, patch complete. Gravity Feed Delivery Aggregate is gravity fed from the tow vehicle to the DuraPatcher hopper. The air slide opens to introduce aggregate to the air delivery system.

## EASY TO READ GAUGE

Large easy to read gauges keep operators informed of important temperatures and air pressures.

## ERGONOMIC NO STRESS BOOM

The 3 piece boom design provides the ultimate in support for the operator. The boom slice system easily moves the hose throughout the 18 ft. working area. The boom supports the hoe and wand keeping the weight and stress off of operator.

## HEATED EMULSION TANK

The 250 gallon pressurized on board emulsion tank provides enough production products over 10 tons of patch on a single fill. The unique heating blankets allow the patcher to be plugged in during non patching times to keep emulsion at peak temperature. Unlike heating probes, blanket heating allows 100% capacity usage and preheating of tank prior to filling.

## VENT FLO NOZZLE

The specially designed Vent-Flo nozzle properly coats the aggregate with the right amount of emulsion regardless of aggregate size. The mix is applied at an angle to the patch allowing maximum placement and best operator safety. The Vent-Flo diffuses the air stream to minimize rock overspray and maximize placement into the repair. The optimal nozzle heater helps performance during colder weather.

## DIRECTIONAL TRAFFIC CONTROL

Large directional arrow light helps protect operator when patching on public roads.

# ROAD MARKING SERVICES

## EL KAMILIN CO.

**AL KAMILIN TRADING & CONTRACTING CO.** part of **REDA GROUP** was established in 1980 as a General Trading And Contracting Co. mainly in the field of site development and buildings. The activities were later diverted in 1983 to the field of traffic safety supplies and installation contracts foreseeing the extraordinary-unique developments in the highways construction and maintenance all around Kingdom.

We are specialists in these sectors:

We also have the latest technology in remove road markings with high pressure water and milling equipment.

### **Airport:**

**EL KAMILING** specializes in road marking for airports, highlighting the works of painting and removal the road markings, We have machinery to realize painting in Runway landing (line of 90cm), machinery to realize painting of Special Lines (Epron 2 colors and 5 lines at the same time) and machinery for removal lines and rubber (see Removal section for more information)

The system used is high pressure water , without any chemicals.

We use machines of last generation and highly qualified personnel.

### **Aramco:**

Thanks to our professionalism the company Aramco relies on our service to make the painting of its facilities.

### **City:**

Cities like Riyadh, Jeddah, Qasim and Damman place their trust in us to make the painting of their roads.

### **HighWays & Road:**

By having the best human and technical means in Al-Kamelin, we painted about 20 M of Km in the KSA.



### **Removal:**

- rubber removal
- platform cleaning
- surface retexturing
- clearing road markings on runways
- taxiways
- platforms

The system used is high pressure water , without any chemicals.

We use machines of last generation and highly qualified personnel.

### **Ceramic & Road Studs:**

In **AL KAMILIN** we have qualified personnel for the application of the most effective ceramics and road studs to delimit, warn and show the lane and road in the worst situations.

Best regards.