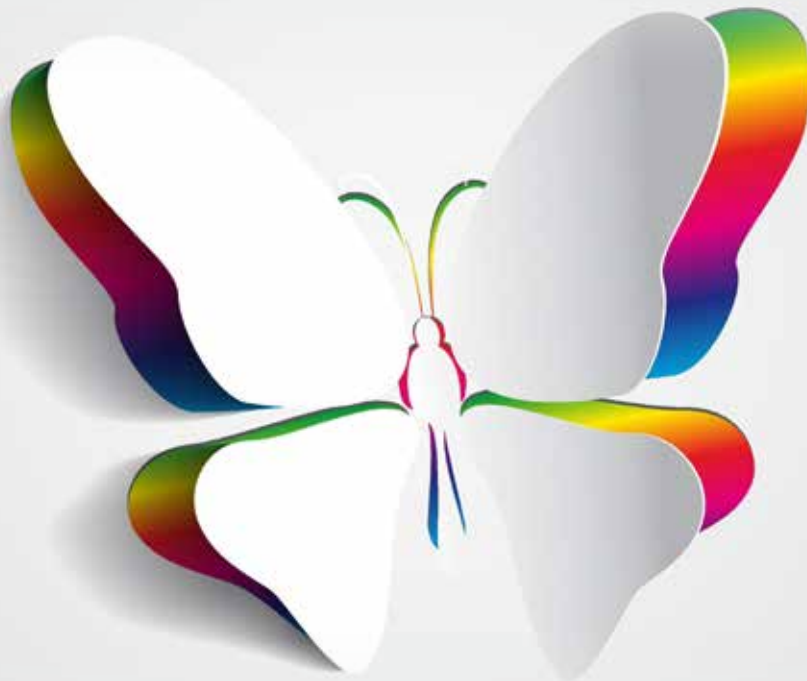




CARBORUNDUM UNIVERSAL LIMITED

Super Refractories & Prodorite Division

CORROSION PROTECTION COATINGS



Application & Product Selection Guide



WE PROTECT



WE RESTORE



WE INNOVATE

About MURUGAPPA.....

Murugappa Group, Founded in 1900, headquartered in Chennai, is one of India's leading business conglomerates. The Group has multiple businesses including eight listed Companies actively traded in NSE & BSE, the major Companies of the Group include Carborundum Universal Ltd., Cholamandalam Investment and Finance Company Ltd., Cholamandalam MS General Insurance Company Ltd., Coromandel International Ltd., Coromandel Engineering Company Ltd., E.I.D.Parrry (India) Ltd., Parrry Agro Industries Ltd., Tube Investments of India Ltd., and Wendt (India) Ltd.

Market leaders in served segments including Abrasives, Auto Components, Cycles, Sugar, Farm Inputs, Fertilizers, Plantations, Construction, Bio-products and Nutraceuticals. The Group has a wide geographical presence in India and serve customers globally in 5 continents.

About CUMI.....

Carborundum Universal Limited (CUMI), founded in 1954 , Pioneered the manufacture of coated and bonded abrasives in India, besides Chemical Resistant linings, Super Refractories, Electro minerals, Industrial Ceramics, and Ceramic fibers. The company makes over 20,000 different varieties of abrasives, electro minerals, ceramics, Corrosion protection products and Refractories manufactured at 25 locations across India, Russia, South Africa, Australia and China. With a global vision, CUMI has been providing world class products & services and expanding its portfolio to serve global consumer needs.

About PRODORITE.....

Prodorite business under CUMI comprises of Chemical Resistant Linings (CRL), Fibre Reinforced Plastics (FRP) composites, and Polymer concrete cells (PCC). In Specific, Chemical Resistant Linings includes our Chemical resistant masonry linings and Corrosion protection coatings and screedings. Prodorite has over five decades of proven experience in Design, Manufacturing, Supply and Execution of Chemical resistant linings and Corrosion protection coatings for a wide variety of industries and applications.

Our MISSION.....

Protect industrial infrastructure through innovative corrosion engineering solutions.

Corrosion Protection Coatings - Key Product Features

Universal Topcoat - Corocrete UA (M)

Description:

Pigmented two component, solvent containing protective coating based on Epoxy – Amine system.

Application Areas:

- It is a universal coating system for cement bound surfaces such as concrete, plaster, asbestos cement, as well as steel
- Containers & Silos in Chemical Industry
- Water Storage tanks
- Nuclear reactor installations
- Sewage works, septic tanks, Sewage containers & Sewage pipes
- Neutralization basins

Advantages:

- Hard with good abrasion resistance
- Virtually impermeable to CO₂ and therefore protects the concrete against carbonization
- Resistant to water, sea water, alkalis, acid, solvents and oil



Certified Hygiene Coating - Corocrete UBL

Description:

Pigmented two component, solvent free, certified Food grade Epoxy Coating & Screeding system.

Application Areas:

- Interior coating for containers and silos used in food industry. Also used in flooring protection
- For drinking water and other containers as well as for swimming pools
- Hygiene coating for operation theatre floors and walls

Advantages:

- Hard and resistant to abrasion, fungal and bacterial activity
- Can be cleaned by steam hosing
- Certified for Food contact applications as per IS 9845, IS 9833 & IS 10171-1986 standards
- Meets US FDA 21 CFR 175.300 standards



Chemical Resistant Coating - Corocrete UBS-24

Description:

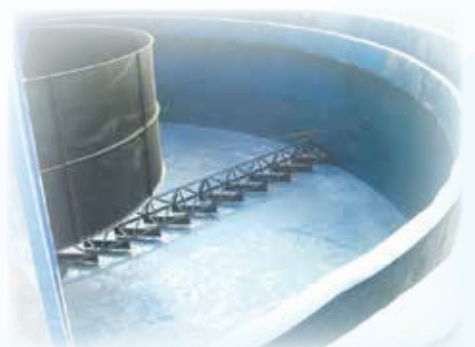
Pigmented two component, solvent free advanced Epoxy Coating & Screeding system for aggressive chemical environments.

Application Areas:

- Process vessels, utilities, plant flooring and drains
- Chemical storage areas and for treatment of silos and containers
- Battery rooms, Water treatment & Effluent treatment plants

Advantages:

- Excellent Chemical resistance towards alkalis, acids & common solvents
- Can be cleaned by steam hosing



Self Level Floor Coating - Cumiflor SL

Description:

Pigmented two component, solvent free Epoxy Coating system for Industrial floor protection & maintenance applications.

Application Areas:

- Clean rooms, laboratories, kitchens, light industrial facilities, chemical, pharmaceutical, fertilizer plants, food industries, etc.
- Applicable for cement based concrete flooring, and also for mild steel substrates

Advantages:

- Very hard with excellent abrasion resistance
- Resistant to organic acids, mineral acids, lyes, mineral oils and solvents
- Provides a dense, impervious, monolithic, colored & chemical resistant floor which is hygienic & easy for maintenance



Extreme Corrosion Coating - Cumicoat XC

Description:

Pigmented two component, solvent free advanced Epoxy Composite system provides excellent corrosion protection to chemical environments comprising a broad spectrum of chemicals

Application Areas:

- Protection of Concrete & Steel substrates in chemical, petrochemical, fertilizer, pulp & paper plants, textile industries, etc.
- Suitable for protecting machinery, equipment and process facilities.

Advantages:

- Very hard with excellent abrasion resistance
- Extreme corrosion & Chemical resistant towards organic and mineral acids, alkalis, wide range of salts and solvents
- Steam cleanable



Anti Static Flooring - Cunitop SL AS

Description:

Pigmented two component, Epoxy Coating system with built-in conducting / anti-static properties for Industrial floor coating.

Application Areas:

- Clean rooms, laboratory solvent handling areas, explosive and ammunition plants, kitchens, light industrial plants, pharmaceutical plants, automotive paint shops, electronic industries, etc.
- Cement based concrete flooring, and mild steel substrates

Advantages:

- Very hard with good abrasion resistance
- ESD safe coating with electrical resistance in the range of $10^4 \sim 10^8$ ohms
- Resistant to organic acids, mineral acids, lyes, mineral oils and solvents



Polyurethane Coating - Cumicoat APU

Description:

Two component, water based Polyurethane system for both interior as well as exterior applications.

Application Areas:

- Top coat for industrial floor coatings to increase abrasion, scratch resistance & UV resistance
- Public Areas such as lobby, malls, Station Platforms, Warehouse floorings, Industrial floorings & highways.
- Clear top coat for stone cladding and textured coatings.

Advantages:

- Excellent abrasion & impact resistance
- Eco friendly – Low / No VOC coating
- Excellent Flexibility & easy to clean / maintain
- Excellent weather resistant properties (Passes 1000 hours UV exposure)



Coal Tar Epoxy - Corocrete TE

Description:

Two component, coal tar epoxy resin system for anticorrosive coating applications.

Application Areas:

- Coating of sewer pipes, sewage treatment plant structures, digestion tanks, etc.,
- Hydraulic steel construction like sluices, steel sheet, pipes, etc.,
- Coating for structural steel in fertilizer, chemical and other industries and in coastal installations

Advantages:

- Good elasticity, toughness, hardness and abrasion resistance
- Low Water absorption and good water proofing property
- Resistance to dilute acids, lyes, petrol, oil and diesel



Erosion Resistant Coating - Cumicoat EC

Description:

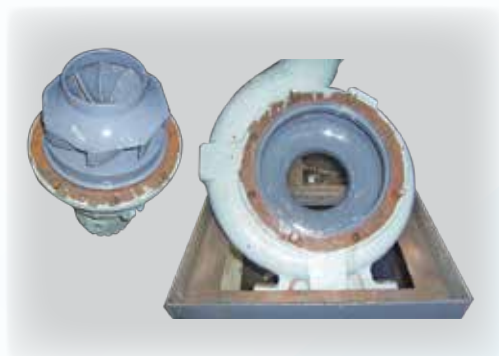
Pigmented two component, solvent free high performance polymer composite for repairing, resurfacing, rebuilding and protecting all types of fluid flow machinery, equipments and structures from aggressive erosion and corrosion damage.

Application Areas:

- For protecting new components and for repairing damaged equipments.
- Coating applications for heat exchanger tube sheets & water boxes, pumps, valves, pipes, housings & tanks, cooling towers, etc.

Advantages:

- Outstanding resistance against erosion due to fluid flow & chemical corrosion
- Very hard with excellent abrasion resistance
- High mechanical load resistance
- Resistant to lyes, dilute acids, salt solutions, mineral oils, aliphatic hydrocarbons, grease, fuels, sea water.



CUMI - PRODORITE : Corrosion Protection Coatings - Typical Properties

Sl.No	Product Description	Composition	Mixing Ratio By Weight	Mix Density g/cc	Pot Life @ 25°C in minutes, min	Tack Free time, in minutes	Hard dry, in hours	Hardness Shore A/D	Coverage, Kgs/m ² /coat @ --- microns DFT Thick	Temperature Resistance °C Dry & Wet	Comments
Primers											
1	Corocretin BI	Epoxy	3:1	0.9	240	60	24	**	0.25 40 µm DFT	Dry -30°C - 90°C & Wet 40°C	Concrete dust proofer, Sealer, Impregnator with Good abrasion resistance
2	Corocretin IHS-BV (M)	Solvent Free Epoxy	3:1	1.10- 1.20	30	120	24	90 D	0.25 180 µm DFT	Dry -30°C - 100°C & Wet 50°C	Low Viscous Clear primer & Sealant for porous substrates
3	Corocretin ZNP	Solvent Free Epoxy	9:1	1.5-1.6	300-360	45	8	**	0.25 30-35 µm DFT	Dry -30°C - 90°C & Wet 40°C	Zinc Phosphate primer for Corrosion protection of steel structures
4	Corolac ZRP	Epoxy	5:1	1.90-2.00	120	30	8	**	0.25 40 µm DFT	Dry -30°C - 90°C & Wet 40°C	Zinc Rich Anti corrosive Primer for Ferrous metal surfaces
5	Corocretin IHL 18	Solvent Free Epoxy	2:1	1.10-1.20	60	200	24	90 D	0.25 180 µm DFT	Dry -30°C - 90°C & Wet 40°C	For bonding old & New concrete, also can be applied on slightly damp surfaces with moisture upto 5%
6	Cumiprime 100	Solvent Free Epoxy	2:1	1.10-1.20	20	90	24	90 D	0.25 180 µm DFT	Dry -30°C - 90°C & Wet 40°C	Primer for SL coatings as well as other Epoxy topcoats
7	Cumiprime 1K PU Clear	Single Pack PU	NA	1.1	90	55	24	**	0.175 100 µm DFT	Dry 10°C - 80°C & Wet 40°C	Low Viscous, high solids PU Clear primer for concrete & metals
8	Cumiprime EC	Epoxy	4:3	1.10-1.20	20	75	24	90 D	0.25 110 µm DFT	Dry -30°C - 90°C & Wet 40°C	Primer cum excellent adhesion promotor for metals & composite substrates
Screed / Putty											
9	Corocretin UBS A2B3 (23)	Solvent Free Epoxy	1:0.6:8.5	2.0-2.1	30	130	24	90 D	2.1 Kgs / mm	Upto 100°C Dry & upto 45°C Wet	Good Abrasion and Chemical resistant Epoxy Screeding system
10	Cumitop TF2	Solvent Free Epoxy	1.5:0.75:9	1.40-1.50	30	125	24	90 D	1.6 Kgs/mm	Dry +10°C to 80°C & upto 45°C Wet	Hard & Abrasion resistant Epoxy Screed for SL system
11	CumiPutty EP1	Solvent Free Epoxy	1:0.25:5	1.25~1.35	30	90	24	90 D	1.3 Kgs/mm	Dry +10°C to 80°C & upto 45°C Wet	Epoxy Putty for sealing substrate undulations, high strength & chemical resistance
12	Cumipaste EC	Solvent Free Epoxy	4:3	1.75	25	140	24	90 D	1.75 Kgs/mm	Dry +10°C to 80°C & upto 45°C Wet	High abrasion & Chemical resistant paste for repair & resurfacing & rebuilding of damaged components
Topcoat											
13	Corocretin TE	Coal Tar Epoxy	4:1	1.5-1.65	100-200	90	72	80 D	0.2 100 µm DFT	Dry -30°C - 80°C & Wet 40°C	Anticorrosive & Water proofing coating
14	Corocretin UA (M)	Epoxy	4:1	1.25-1.35	120	60	12	**	0.2 50 µm DFT	Dry -30°C - 150°C & Wet 80°C	Universal coating for concrete, plaster, asbestos & Steel surfaces
15	Corocretin UBL	Solvent Free Epoxy	4:1	1.5-1.6	25	90	24	90 D	0.25 125 µm DFT	Dry -30°C - 100°C & Wet 45°C	Food Grade Coating for tanks, floors & Walls
16	Corocretin UBS - 24	Solvent Free Epoxy	4:1	1.5-1.65	30	120	24	90 D	1.8 Kgs/mm	Upto 100°C dry & upto 45° Wet	Ideal Protective coating for highly corrosive environments
17	Cumitop SL	Solvent Free Epoxy	14.8:2.2	1.5-1.6	20	90	24	90 D	1.8 Kgs/mm	10°C-80°C dry & upto 45°C Wet	Premium Self Level Industrial Floor Protection cum maintenance coatings
18	Cumicoat EC	Solvent Free Epoxy	4:3	1.75	20	80	24	90 D	0.7 320 µm DFT	10°C-80°C dry & upto 45°C Wet	Excellent Corrosion & Erosion resistance coating for protecting damaged components
19	Cumicoat SC	Epoxy	2:1	1.3	25	90	24	90 D	0.25 150 µm DFT	10°C-80°C dry & upto 45°C Wet	High aesthetic & Chemical Resistant coating
20	Cumicoat XC	Advanced Epoxy	2:1	1.3	20	90	24	90 D	0.25 150 µm DFT	10°C-80°C dry & upto 45°C Wet	98% H ₂ SO ₄ resistant Coating
21	Cumitop SLAS	Solvent Free Epoxy	2.7:1	1.4	20	90	24	90 D	1.5 Kgs/mm	Dry -30°C - 100°C & Wet 45°C	Anti static / Conductive Epoxy Floor Coating
22	Cumicoat APU Clear	Water based PU Clear	4:1	1.15	240	30	24	**	0.15 15-20 µm DFT	Dry 10°C - 80°C & Wet 40°C	UV resistant PU Clear coating with good aesthetics
23	Cumicoat APU White	Water Based PU Topcoat	5:1	1.2	240	30	24	**	0.15 35-40 µm DFT	Dry 10°C - 80°C & Wet 40°C	UV resistant PU Coating with excellent abrasion & scratch resistant properties
Sealants											
24	Corocretin EPFM 75	Solvent Free Epoxy-PU	5:1	1.2	30	120	24	85 A	**	Dry -30°C - 80°C & upto 40°C Wet	Joint Filler / Sealant for Industrial floors
25	Cumiseal 104GG	Polysulphide	92:8	1.6	30	120	24	15~25 A	0.16 Kgs / m / 10mmx10mm	Dry -40°C - 80°C	Highly elastic, fuel proof expansion joint sealant

CUMI - PRODORITE : Corrosion Protection Coatings - Product Selection Guide

Sl.No	Product Description	Composition	Substrate		Chemical Environment		Application Areas									
			Concrete	Steel	Harsh	Medium	Hygiene (F&B)	Chemical Handling	Wall	Floor	Water Proofing	Repair & Rework	Exterior	Car Park	Stone Cladding	
1	Corocrete TE	Coal Tar Epoxy	✓✓	✓✓		✓✓		✓✓				✓✓		✓✓		
2	Corocrete UA (M)	Epoxy	✓✓	✓✓		✓✓		✓	✓✓	✓✓	✓				✓	
3	Corocrete UBL	Solvent Free Epoxy	✓✓	✓✓		✓	✓✓	✓	✓✓	✓✓	✓					
4	Corocrete UBS - 24	Solvent Free Epoxy	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓	✓				
5	Cumiflor SL	Solvent Free Epoxy	✓✓	✓		✓	✓			✓✓	✓				✓✓	
6	Cumicoat EC	Solvent Free Epoxy		✓✓		✓						✓✓				
7	Cumicoat SC	Epoxy	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓			✓			
8	Cumicoat XC	Advanced Epoxy	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓			✓			
9	Cumitop SLAS	Solvent Free Epoxy	✓✓	✓✓						✓✓						
10	Cumicoat APU Clear	Water based PU Clear	✓✓	✓✓	✓	✓	✓	✓	✓✓	✓✓	✓		✓✓	✓✓	✓✓	✓✓
11	Cumicoat APU White	Water Based PU Topcoat	✓✓	✓✓	✓	✓	✓	✓	✓✓	✓✓	✓		✓✓	✓✓		

✓✓ Highly Suitable

✓ Can also be tried

NOTE : This is only a selection of coating products and a wide array of other coating products that can be customized for any specific applications are also available

CHEMICAL RESISTANCE CHART

Sl.No	CHEMICALS	PRODUCTS				
		Corocrete UA (M)	Corocrete UBL	Corocrete UBS-24	Cumitop SL	Cumicoat XC
1	Acetic Acid... 2%	S	S	S	S	S
2	Acetic Acid... 10%	-	L	S	S	S
3	Alcohols	L	U	S	S	S
4	Ammonium Hydroxide... 10%	S	S	S	S	S
5	Ammonium Hydroxide... 20%	S	S	S	S	S
6	Calcium Hydroxide, Saturated	S	S	S	S	S
7	Chromic Acid... 5%	L	L	S	S	S
8	Formic Acid 2%	S	S	S	S	S
9	Formic Acid 5%	-	-	S	S	S
10	Fruit Juice/Beverages	S	S	U	U	U
11	Hydrocarbon, Aliphatic	S	S	S	S	S
12	Hydrocarbon, Aromatic	L	U	S	S	S
13	Hydrocarbon, Chlorinated	U	U	L	U	L
14	Hydrochloric Acid... 10%	S	L	S	S	S
15	Hydrochloric Acid... 20%	S	U	S	S	S
16	Hydrochloric Acid... 36%	L	U	S	L	S
17	Hydrofluoric Acid 20%	U	U	L	U	L
18	Ketones	U	U	L	U	L
19	Lactic Acid... 3%	S	S	S	S	S
20	Lactic Acid... 5%	-	-	S	S	S
21	Milk	U	S	U	U	U
22	Mineral Oils	S	S	S	S	S
23	Nitric Acid... 10%	S	U	S	S	S
24	Nitric Acid... 20%	U	U	S	S	S
25	Petroleum Products-Kerosene, Petrol	S	S	S	S	S
26	Phosphoric Acid... 10%	S	S	S	S	S
27	Phosphoric Acid... 20%	S	L	S	S	S
28	Phosphoric Acid... 30%	-	-	S	S	S
29	Salt Solutions, Acidic	S	S	S	S	S
30	Salt Solutions, Alkaline	S	S	S	S	S
31	Salt Solutions, Neutral	S	S	S	S	S
32	Sodium/Potassium Hydroxide... 50%	S	S	S	S	S
33	Sugar	U	S	U	L	U
34	Sulfuric Acid... 10%	S	L	S	S	S
35	Sulfuric Acid... 20%	S	S	S	S	S
36	Sulfuric Acid... 60%	U	U	S	L	S
37	Sulfuric Acid... 98%	U	U	L	U	S
38	Vegetable Oils	S	S	S	S	S
39	Water-Waste/Sea/Raw	S	S	S	S	S




S – Suitable for Most Applications, L – Limited usage for intermittent contact, Splashes, etc, U – Unsuitable

NOTE : Whilst CUMI - Prodorite strives to ensure that any advice, information or recommendation given are appropriate and correct, it cannot accept any liability directly or indirectly arising out of the products, since the method and place of application of the products are beyond its control



USER INDUSTRIES

 Atomic Power	 Automobile	 Battery
 Beverages	 Breweries	 Chemical
 Chlor-alkali	 Cement	 Confectionery
 Construction	 Defence	 Dairy
 Dyes	 ETP	 Electronics

 Explosives	 Fat & Soap	 Fertilizers	 Hospitals
 Pesticides	 Pharmaceuticals	 Iron & Steel	 LPG Bottling
 Leather	 Metals & Minerals	 Petrochemicals	 PAP & SAP
 Pickling	 Pulp & Paper	 Railways	 Rayon & Viscose
 Soda ash	 Sugar	 Thermal Power	 Wire

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