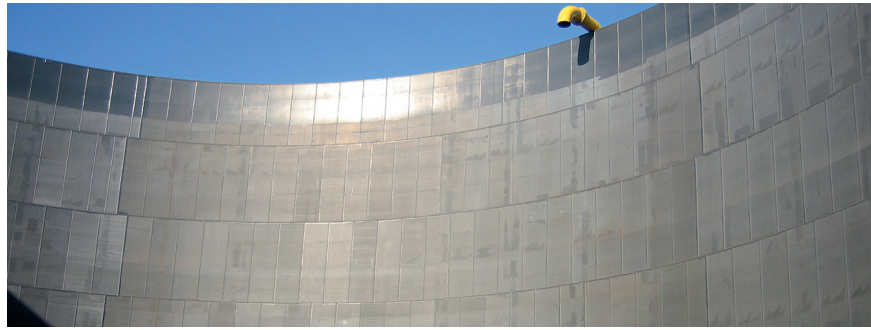




// ONE BRAND // ONE SOURCE // ONE SYSTEM



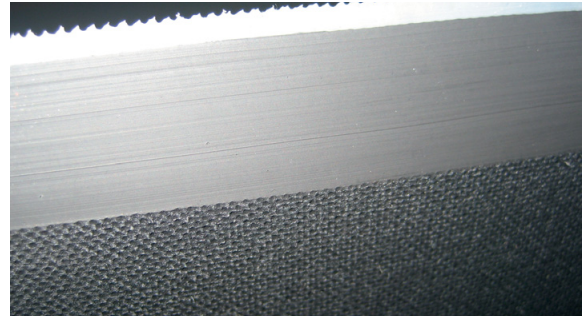
CORROSION PROTECTION
REMA TIP TOP/North America, Inc.

RUBBER LINING MATERIALS

In the **REMA TIP TOP** Surface Protection segment, soft rubber linings are utilized under the brand name **CHEMOLINE** and hard rubber linings under the brand name **CHEMONIT**. Our rubber sheets are produced on an ultra-modern roller head system with an integrated vacuum extruder. This is the only way in which pore-free and absolutely homogeneous rubber sheets can be produced that guarantee long operating times.

REMA TIP TOP offers the following types of rubber:

- Bromobutyl rubber (BIIR)
- Chlorobutyl rubber (CIIR)
- Chloroprene rubber (CR)
- Natural rubber (NR)
- Hypalon (CSM)
- Isoprene rubber/Styrol-butadiene rubber (IR/SBR)
- Bromobutyl/Polyvinylchloride (BIIR/PVC)
- Chlorobutyl rubber/Chloroprene rubber (CIIR/CR)



Section through a homogeneous pore-free REMA TIP TOP rubber lining

WORKSHOP RUBBER LINING

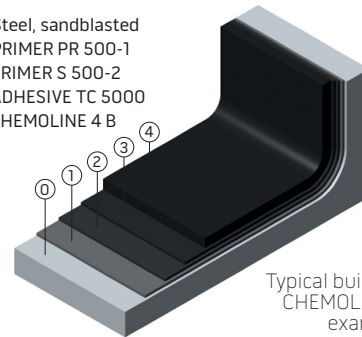
For components that fit into an autoclave and can be transported, such as pipes, flue gas scrubbers, quench towers, venturi scrubbers, filter and storage tanks, reaction and pickling tanks, centrifuges, road- and railway tanks, valves as well as rollers and drums, REMA TIP TOP workshop rubber linings offer optimal protection.

CHEMOLINE soft rubber lining – unvulcanized or self-vulcanizing:

Unvulcanized **CHEMOLINE** soft rubber lining products are normally vulcanized in an autoclave. However these can also be vulcanized on the construction site with steam or hot water. Specially developed rubber lining materials and adhesives can be used up to an operating temperature of 120 °C after vulcanization.

Self-vulcanizing soft rubber lining compounds also vulcanize at ambient temperatures over a longer period of time (months). For certain media, partial vulcanization is often sufficient and full vulcanization then occurs under operating conditions.

0. Steel, sandblasted
1. PRIMER PR 500-1
2. PRIMER S 500-2
3. ADHESIVE TC 5000
4. CHEMOLINE 4 B



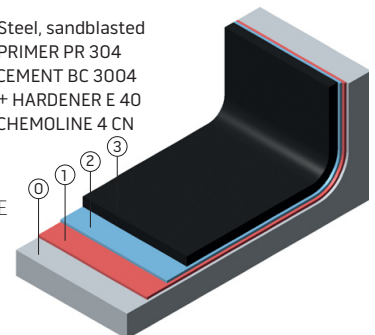
Typical build-up, using CHEMOLINE 4 B as example

CHEMOLINE soft rubber lining – vulcanized:

In these soft rubber linings, such as **CHEMOLINE 4 CN**, the rubber sheets are vulcanized and contain an easy-to-bond CN base layer. These rubber sheets can be bonded to both steel and concrete substrates. These rubber lining materials will be applied using special **REMA TIP TOP** adhesives and no further vulcanization is necessary. The applied rubber lining can be put directly into service without any further loss of time due to a vulcanization process.

0. Steel, sandblasted
1. PRIMER PR 304
2. CEMENT BC 3004 + HARDENER E 40
3. CHEMOLINE 4 CN

Typical build-up, using CHEMOLINE 4 CN as example



CHEMONIT hard rubber lining

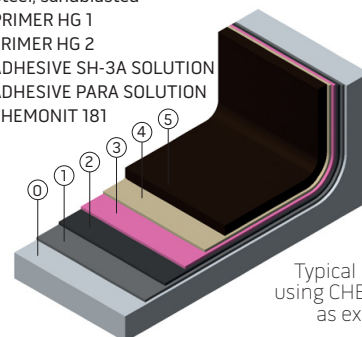
CHEMONIT hard rubber lining materials are applied un-vulcanized and must be subsequently vulcanized. Vulcanization is normally carried out in an autoclave under temperature and pressure. Special hard rubber lining compounds can also be vulcanized on the construction site with steam or hot water.

ON-SITE RUBBER LININGS

Here, **REMA TIP TOP** has developed rubber linings for all industrial sectors that can be used on site no matter what the size of the component is. These on-site rubber linings offer optimal perfection for storage containers, pipes, reaction vessels, flue gas scrubbers and others, but also for concrete components such as waste water sewers and deionizing and neutralization basins. **REMA TIP TOP** on-site rubber lining is eminently suitable not only for acid, lye and salt solutions whose effects are increased by high temperatures or temperature change; it is also excellently suited to mechanical stresses.

Different materials are used depending on the requirements and the circumstances on site.

0. Steel, sandblasted
1. PRIMER HG 1
2. PRIMER HG 2
3. ADHESIVE SH-3A SOLUTION
4. ADHESIVE PARA SOLUTION
5. CHEMONIT 181



Typical build-up, using CHEMONIT 181 as example

CHEMOLINE – Soft rubber lining systems

CHEMOLINE 3 / 3 CN

Polymer: Polychloroprene rubber (CR)
Chemically resistant against: Caustic soda solutions, acids and wastewater.
Continuous use temperature: 85°C
Applications / Miscellaneous: Oil-resistant and abrasion-resistant against media with a high solids content. DIBt approval: Z-59.22-165

CHEMOLINE 4 A / 4 B / 4 CN

Polymer: Bromobutyl rubber (BIIR)
Chemically resistant against: Mineral acids, bases, polar solvents, aqueous phases and also excellent diffusion resistance to gases such as sulphur dioxide, nitrogen oxides and water vapour.
Continuous use temperature: 110°C / 85°C
Applications / Miscellaneous: Various uses, e.g. in flue-gas desulphurisation, in brown-coal power stations, mineral processing. Available as pre-vulcanized, self-vulcanizing or autoclave version. DIBt approval: Z-59.22-159, Z-59.22-149, Z-59.22-162

CHEMOLINE 8 / 8 CN

Polymer: Chlorosulphonated polyethylene (CSM)
Chemically resistant against: Mineral acids, oxidising acids, bases, polar solvents, aqueous phases and hypochlorite solutions.
Continuous use temperature: 80°C
Applications / Miscellaneous: Particularly suitable for road tankers and tank wagons. DIBt approval: Z-59.22-234

CHEMOLINE 12 FDA / 12 CN FDA

Polymer: Chlorobutyl rubber (CIIR)
Chemically resistant against: Inorganic acids, bases and aqueous media.
Continuous use temperature: 85°C
Applications / Miscellaneous: **CHEMOLINE 12 CN FDA** is developed specifically for the onsite rubber lining of chemically loaded steel or concrete components. Linings of storage tanks and agitated tanks, basins, pipe spools as well as various vessels in the phosphoric acid industry.

CHEMOLINE 55 / 55 CN

Polymer: Natural rubber (NR)
Chemically resistant against: Mineral acids, bases and aqueous media.
Continuous use temperature: 60°C
Applications / Miscellaneous: **CHEMOLINE 55** is a soft rubber lining system with high abrasion resistance especially designed for wet environments in mineral processing and fertilizer industry.

CHEMOLINE 70 / 70 CN

Polymer: Chlorobutyl rubber (CIIR) / Polyvinylchloride (PVC)
Chemically resistant against: Mineral acids, bases, aqueous phases and in particular concentrated hydrochloric acid up to 60°C-80°C.
Continuous use temperature: 80°C
Applications / Miscellaneous: Widely used in electroplating and particularly where hydrochloric acid is contacted (HCl storage tanks).

CHEMOLINE RT / RT CN

Polymer: Brombutyl rubber (BIIR)
Chemically resistant against: Mineral acids, bases, polar solutions, aqueous media, and especially oxidising media like nitric acid, chromic acid and sodium hypochlorite.
Continuous use temperature: 120°C / 85°C
Applications / Miscellaneous: Electroplating, hydrochloric acid storage tanks, tank wagons as well as reaction vessels with high operating pressure.

CHEMONIT – Hard rubber lining systems

CHEMONIT 18 HT

Polymer: Natural rubber (NR), graphite, ESD
Chemically resistant against: Mineral acids, bases, organic media and aqueous media.
Continuous use temperature: 120°C
Applications / Miscellaneous: The electroconductive material is particularly suitable for frequent temperature changes and is used in process vessels, fractionating columns, crystallizers etc. No high voltage spark test possible.

CHEMONIT 31

Polymer: Natural rubber (NR)
Chemically resistant against: Mineral acids, bases, aqueous phases and organic chemicals.
Continuous use temperature: 100°C
Applications / Miscellaneous: Diverse components in the chemical, chlorine and steel industries, in mineral processing, electroplating and environmental protection. DIBt approval: Z-59.22-140.

CHEMONIT 33

Polymer: Natural rubber (NR)
Chemically resistant against: Mineral acids, bases, aqueous phases and organic chemicals, in particular moist chlorine.
Continuous use temperature: 105°C
Applications / Miscellaneous: Diverse components in the chemical, chlorine and steel industries, in mineral processing, electroplating and environmental protection. DIBt approval: Z-59.22-312

CHEMONIT 35

Polymer: Isoprene rubber (IR) / Styrene-butadiene rubber (SBR)
Chemically resistant against: Mineral acids, bases, aqueous phases and in particular excellent resistance against moist chlorine.
Continuous use temperature: 100°C
Applications / Miscellaneous: Wide application possibilities for components subject to high chemical-thermal loads. The particularly long shelf life and the possibility of autoclave, hot water or steam vulcanization makes **CHEMONIT 35** particularly suitable for construction site applications. DIBt approval: Z-59.22-322

CHEMONIT 20 KTW

Polymer: Isoprene rubber (IR)
Chemically resistant against: Mineral acids, bases, aqueous phases and organic aldehydes.
Continuous use temperature: 100°C
Applications / Miscellaneous: **CHEMONIT 20 KTW** specifically for the workshop rubber lining of steel components in the drinking water and food industry. Rubber linings of storage and filter tanks, accessories, instruments and of other miscellaneous equipment components.

ADHESIVES AND RUBBER SOLUTIONS - REMAFIX filler and repair pastes

REMA TIP TOP repair systems are based on high-quality epoxy or vinyl ester resins, as well as on synthetic rubbers. According to the type of rubber lining, damage to the lining is quickly and permanently repaired by use of either our **REMA TIP TOP REMA FIX S** soft-rubber repair kit or our **REMA FIX H** hard rubber repair paste.

Further systems have been specially formulated for steel restoration and or the pre-treatment of concrete surfaces. A simple process enables small repairs to be professionally carried out by maintenance personnel. **REMA TIP TOP** supplies the repair systems in appropriately paired two-component containers.

REPAIR PASTE FOR HARD-RUBBER LINING

REMAFIX H (A+B) - Solvent-free

REMAFIX H (A+B) is a reaction-hardening, solvent-free material in paste form for the repair of small damaged areas such as pores and cracks in hard-rubber lining. **REMAFIX H (A+B)** is also used as an adhesive paste for applying vulcanised hard rubber plates to flange surfaces.



525 0563

REPAIR PASTE FOR SOFT-RUBBER LINING

REMAFIX S - Solvent-free

REMAFIX S processed with hardener **REMAFIX S H3** is a solvent-free, elastic two-component repair kit on a polymer base of a modified polybutadiene rubber (BR). **REMAFIX S** in combination with **REMAFIX PR 100** bonding primer displays outstanding adhesion to various substrates, such as steel, soft rubber lining, hard rubber lining, graphite components and acid-proof ceramic. Its unique properties are good chemical resistance to non-oxidising mineral acids, bases, aqueous liquors, and especially the good resistance to media that feature high content of solids.



525 2853

REMA Corrosion Control - Product Line

CORROSION PROTECTION

REMA Corrosion Control, Inc., a wholly owned subsidiary of **REMA TIP TOP**, is a global market leader in the corrosion industry, specializing in high performance linings and coatings. **REMA Corrosion Control** offers a full line of chemical resistant Lining, Coating and Flooring systems to solve corrosion problems in a wide range of industrial market applications. These systems are designed to provide optimum corrosion protection, ease of application, reduced downtime, and cost effective solutions for long term service. Our products are formulated using various quality grade resins including vinyl ester, novolac vinyl ester, epoxy, epoxy novolac, polyester, and specialty polymers.



Concrete Seawater FGD Absorber Lining



Chemical Process Vessel Lining

PRIMARY CONTAINMENT

REMA Corrosion Control has a range of engineered lining and coating systems designed for the protection of steel and concrete substrates in primary containment service. Our linings combine the use of several quality grade resin technology options with various fillers and/or reinforcement materials to provide optimum chemical, permeation, temperature, and abrasion resistance as well as other unique properties that may be required to solve problems in specific operating environments.

REMA Corrosion Control Lining & Coating system designs for primary containment service include glass flake reinforced trowel applied linings, flake filled spray or roller applied coatings/linings, fiberglass mat reinforced flake filled linings, heavy duty trowel applied fiberglass reinforced linings and fiberglass mat and resin laminate linings.

SECONDARY CONTAINMENT

REMA Corrosion Control product line provides protection of secondary containment structures including truck loading/unloading stations, storage and process floor areas in most industries. We offer a wide variety of products to meet your specific corrosion control needs in secondary containment applications, such as, reinforced linings, flake filled coatings, light duty coatings and flooring materials.

The corrosion control solutions we offer are not limited to just chemical protection but take into consideration the need for other relevant properties like abrasion, thermal shock and impact resistance, crack-bridging capability, conductivity and high temperature resistance in order to give our customers the best and most cost effective options.

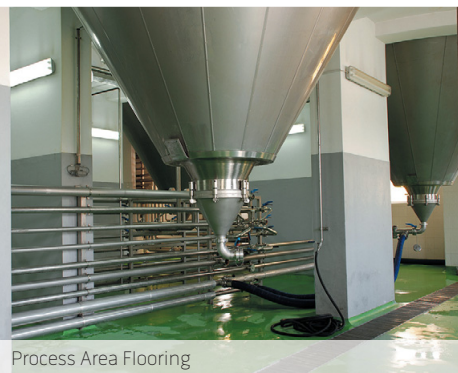
PROCESS FLOORING

REMA Corrosion Control product line provides protection for tough Process Floor environments. Protection starts with concrete and crack repair, crack bridging systems and joint materials. Our polymer systems can provide protection from chemicals, temperatures from process liquids, wear and impact to meet the demands of our customer's operating service conditions.

Our standard polymer flooring systems include a range of base resin types that are applied as stand-alone coatings, broadcast, slurry/broadcast, and trowel applied flooring depending on specific service requirements. Our range of coatings and reinforced linings are also used for the protection of process floors in specific cases.



Corrosion Protection for Power Plant FGD Systems



Process Area Flooring



Crack-Bridging Containment Lining



Chimney / Stack Flue Lining



Chemical Storage Area Coating



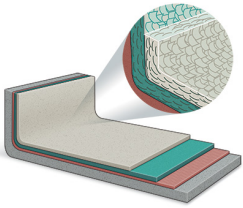
Chemical Spill Area Coating



Chemical Fill Station Floor Coating

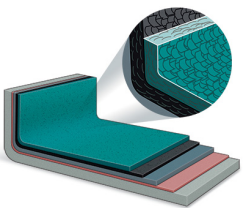
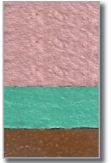
REMA Corrosion Control offers a full line of chemical resistant Lining, Coating and Flooring systems to solve corrosion problems in a wide range of industrial market applications. These systems are designed to provide optimum corrosion protection, ease of application, reduced downtime, and cost effective solutions for long term service. Our products are formulated using various quality grade resins including

vinyl ester, novolac vinyl ester, epoxy, epoxy novolac, polyester, and specialty polymers. Our core product line consists of several system categories and designs as featured below. Other products offered include pourable polymer grouts, chemical resistant joint sealants and concrete repair materials.



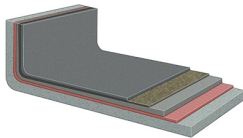
COROFLAKE – Trowel applied glass flake reinforced linings

Trowel applied, glass flake reinforced **COROFLAKE** series linings are available in several base resin formulations for the protection of steel substrates in immersion service. These linings exhibit excellent chemical and permeation resistance. The lining is applied in two coats over primer to achieve a target dry film thickness (DFT) of 80 mils (2.0 mm) with a range of 60-120 mils (1.5-3.0 mm). With various base resin systems available this linings series can be used for protection against most chemical immersion services at temperatures up to 200°F (93°C).



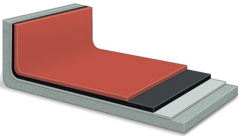
COROFLAKE – Spray applied flake filled linings/coatings

Spray and roller applied, flake filled **COROFLAKE** series coatings are available in several base resin formulations for the protection of steel and concrete substrates. Features include excellent chemical resistance, user friendly application and quick return to service. **COROFLAKE** coatings can be used, depending on resin type, number of coats, service condition and substrate, at up to 160°F (71°C) in immersion service, 220°F (104°C) for splash/spill exposure and 400°F (204°C) in dry service conditions.



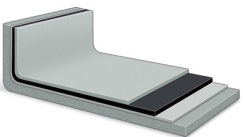
COROFLAKE MR – Mat reinforced flake filled linings

COROFLAKE MR series lining design incorporates a trowel applied basecoat, one layer of fiberglass mat reinforcement, and a flake filled topcoat from our **COROFLAKE** coatings range. These linings are available in several base resin formulations for the protection of concrete and steel substrates. The lining design combines trowel and roller/spray application to provide an economical alternative to trowel-mat-trowel linings where applicable. The applied lining thickness range is 80-120 mils (2.0-3.0 mm) DFT with a target of 100 mils (2.5 mm).



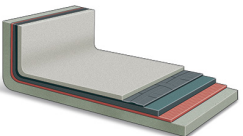
COROGARD – Protective coatings/linings

Light to medium duty chemical resistant coatings/linings designed for the protection of concrete and steel substrates. Product features include high solids content, low VOC's, ease of application, and excellent bond to the substrate. These systems are applied by spray, roller or brush and can be used in mild immersion, secondary containment and as floor coatings.



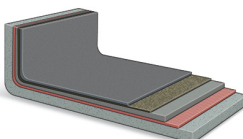
COROFLOOR – Polymer flooring

Unique range of polymer floor coating systems primarily designed for the protection of concrete floors in process areas. These systems are available in several base resin formulations and various designs to provide chemical resistance and other properties such as thermal shock resistance, textured finish, durability and wear resistance. These flooring systems are applied in various forms including as a coating, broadcast, slurry broadcast and trowel application.



TOPLINE – Trowel applied reinforced & unreinforced linings

Trowel applied **TOPLINE** heavy duty linings are available in several base resin formulations for the protection of concrete and steel substrates. These systems provide excellent chemical resistance as well as outstanding impact strength, abrasion resistance or conductivity depending on the filler used. Depending on conditions and substrate, these linings are suitable at temperatures up to 180°F (82°C) in immersion and 220°F (104°C) for splash/spill conditions. Typical applied thickness range of **TOPLINE** linings is 120-160 mils (3.0-4.0 mm) DFT.



RCC LININGS – Mat and resin reinforced laminate linings

Reinforced laminate linings are available in several base resin formulations for the protection of steel and concrete substrates in immersion service. These linings are designed for maximum chemical resistance in aggressive process conditions. Depending on conditions and substrate, these linings are suitable at temperatures up to 180°F (82°C) in immersion. Typical applied thickness range of **RCC LININGS** is 120-160 mils (3.0-4.0 mm) DFT.





CHEMICAL INDUSTRY

REMA TIP TOP offers a wide range of chemical and temperature resistant lining, coating and flooring systems for the protection of steel and concrete plant assets in the Chemical industry. Our long term service solutions are designed for application in areas such as Chemical Storage Tanks and Process Vessels, Chemical Filling Stations, Truck Loading/Unloading Areas, Process Floors, Sumps and Trenches, Secondary Containment Structures and Waste Treatment Facilities.



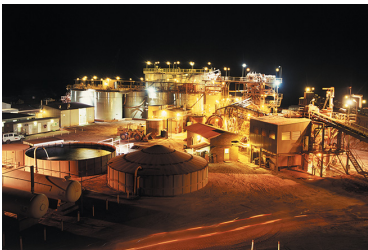
OIL & GAS INDUSTRY

From the oil extraction stage through refining and production of petrochemical products, **REMA TIP TOP** has a range of chemical resistant lining and coating systems designed for long term protection of steel and concrete structures. Application areas include Separator Vessels, Acid Tanks, Waste Neutralization Tanks, Chemical Storage Tanks and Process Vessels as well as Secondary Containment Structures and Process Floors.



POWER INDUSTRY

REMA TIP TOP has a range of high performance chemical, abrasion and temperature resistant lining and coating systems for protection of steel and concrete structures in the Power industry with particular expertise in protection of Flue Gas Desulfurization (FGD) process equipment and facilities. Applications include linings for Absorbers, Auxiliary Tanks, Flue Gas Ducts, Stack Flues, Bag-house Compartments, Wastewater Tanks, Concrete Sumps, Trenches and Secondary Containment Structures. **REMA TIP TOP** offers pre-vulcanized or self-vulcanizing rubber lining systems (**CHEMOLINE**) or troweled, spray or laminate lining systems (**COROFLAKE, RCC LININGS**). The materials are mostly applied on-site, however components can be lined in the workshop, such as suspension piping, filter holders and agitators.



MINING AND MINERALS PROCESSING INDUSTRY

The processing of minerals and metals produces a need for corrosion control solutions to protect steel and concrete plant assets from aggressive chemical and abrasive environments. **REMA TIP TOP** has a range of high performance lining, coating and flooring systems that are designed to provide optimum protection in plant process areas including Leaching, Solvent Extraction and Electrowinning Cell Houses, Acid Plants and Wastewater Treatment Facilities. Typical applications include linings for Process Tanks and Thickeners as well as protection of concrete Process Floors, Sumps, Trenches and Secondary Containment Structures. **REMA TIP TOP** offers vulcanized or self-vulcanizing rubber lining systems (**CHEMOLINE**) for process tanks and fittings.



WATER AND WASTE WATER

REMA TIP TOP can provide protective lining and coating solutions for aggressive chemical and abrasive environments including Clarifiers, Digesters, Grit Chambers, Aeration Tanks, Basins, Lift Stations, Wet Wells, Sewer Manholes and Secondary Containment in Municipal Water and Wastewater facilities. In addition, **REMA TIP TOP** provides linings and coatings for the protection of concrete and steel structures in Industrial Wastewater Treatment Facilities where the need to treat plant process waste is required.



PULP & PAPER

Pulp and Paper industry has processes that use very aggressive chemicals. **REMA TIP TOP** offers a wide range of protective linings, coatings and flooring systems to protect concrete and steel throughout the various process, storage and waste treatment areas. Typical applications include protection of Process, Storage, and Liquor Tanks; Stock Chests, Bleach Towers and Digesters; Process Floors, Equipment Pads, Piers, Pits, Trenches and Sumps.



FERTILIZERS

The fertilizer industry produces phosphates that are subjected to in-process storage prior to refinement to fertilizers. The high acidity and solid content of the sulfuric acids used in this process place the highest demands on the bonding of the lining systems, especially at high temperatures. **REMA TIP TOP** has supplied the proven rubber lining systems required for the fertilizer based on bromobutyl or butyl compounds (**CHEMOLINE**) and hard rubber lining (**CHEMONIT**) that can be applied on-site. Furthermore, the product range is rounded off by **RCC LINING** systems for concrete protection in collecting basins, channels and pits, as well as coatings for protection against atmospheric pollution (**COROPUR**).

REMA TIP TOP Product & Solutions

CONVEYING SOLUTIONS

Pulley Lagging

- PERFORMANCE GRIP 70
- REMAGRIP
- REMAGRIP Ceramic Lagging
- UNIGRIP
- UNILAG
- T-REX

Belt Cleaners

- REMACLEAN - T-Bar Scrapers
- REMACLEAN - Green Combi
- REMACLEAN - Grey Combi
- REMACLEAN - Cleaning Brush

Skirting

- REMASKIRT
- Combi-Skirt
- T-REX
- UNISKIRT

Repair Products

- Repair Patches
- Repair Strips
- REMA GOO
- RG 7000
- T-2 Repair System

Other

- Conveyor Belting
- REMACLEAT
- Edge Wall
- Impact Slider Bed Bars
- REMAMILL
- REMASCREEN

Rollers & Pulleys

- REMASLEEVE
- REMAROLL
- REMATRACK

WEAR & CORROSION PROTECTION

Wear Protection Lining

- REMA Performance Line
- REMALINE
- REMASTAR
- UNILINE
- REMATHAN
- T-REX

Rubber Linings

- CHEMOLINE
- CHEMONIT

Heavy Wear Protection

- REMALOX
- REMALOX HD
- KG Bars
- ZP Profile Bars
- REMA WEAR Repair

Anticaking

- REMAFLOX
- REMALEN
- REMASLIDE

Corrosion Coatings & Linings

- COROFLAKE
- COROGARD
- COROFLOOR
- TOPLINE
- RCC LININGS
- COROFLEX

Material Handling Hose

- Fixed Flange
- Split or Swivel Flange
- Cut End Hose

ADHESIVES & SOLUTIONS

Cements & Adhesives

- SC 2000 Black / White
- SC 4000 Black / White
- BC 3004 Blue Cement
- PC-4 Plastic Cement

Solutions

- PR 200 Metal Primer
- #13 Cleaning Solvent
- R50 Cleaning Solvent
- TIP TOP Hand Cleaner
- A&B Vulc Compound

Splice Kits

- Hot Splice Kits
- MSHA Splice Kits
- WK Press and Splice Material
- Filler Rubber
- CN Bonding Rubber

TOOLS & REPAIR

Tools

- Rubber Cut Saw
- Extruder Gun
- Vulcanizing Presses
- Combi Stripper
- Grooving Tool

Other

- REMAWRAP Pipe Repair
- OTR Tire Patches



// ONE BRAND // ONE SOURCE // ONE SYSTEM

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