

# *Waste Processing and Recycling Facility Protection Systems*

*Chemical and physical protection of high order*

*EpiMax 222*

*EpiMax 330*

*EpiMax 330RF*

*EpiMax 333AR*

*EpiMax 421HAR*

*EpiMax 465*

*EpiMax 469*

*KilnGard 600*



**EpiMax**



## ***What needs to be considered in the selection of a Waste Processing and Recycling Facility Protection System?***

- **Design life - budget compliance**

The first important question to ask when selecting a wall protection system is - What is the required design life - 2, 5, 10 or 20 years? And, is frequent or regular maintenance feasible? It is virtually impossible to keep any concrete structure from cracking. Waste processing facilities are demanding, both physically and chemically. The specification must meet the agreed design life and the intended maintenance-free period.

- **Chemical and mechanical performance**

The chemical and mechanical performance requirements of the protection system, including impact and abrasion resistance, must be of a high standard especially with hazardous wastes. Any protection system applied to the underlying structure, must exhibit excellent adhesion and have a bond strength that exceeds the tensile strength of concrete.

- **Practical application characteristics**

EpiMax supplies protection systems that can be applied by spray or roller in thicknesses of 150 microns to 3 mm per pass. Trowel applied systems can achieve 75 mm thickness.

- **Contamination prevention - seamless continuity**

Operational contamination prevention in the waste sector is critical. Over time, unprotected concrete can become eroded, cracked, corroded or roughened. Structures will be more difficult to maintain and may no longer be safe. Care should be exercised in selecting protection systems. The entire structure should be seamless, mechanically strong and chemically inert. New standards specify finish and anti-slip requirements.

- **Productivity - cleaning and housekeeping performance**

Seamless surfaces reduce maintenance costs. The protection system must offer sufficient durability and resilience to the long-term effect of essential cleaning regimes.

- **Non-leaching - non-porous**

Any protection systems should be non-leaching and non - porous to the particular application. Standards exist for most applications.

- **Safety delineation**

EpiMax protection systems are available in a wide range of colours from AS 2700 and RAL ranges. Colours can also be matched to project safety requirements.

- **Sustainability - whole of life**

Sustainability is related to the quality of life in a community - whether the economic, social and environmental systems that make up the community are providing a healthy, productive, meaningful life for all community residents, present and future. With regard to concrete protection systems, sustainability should consider the "whole product life cycle". This includes production, application, service life and disposal.

Volatile Organic Content (VOC) is an important measure of a protection system's environmental impact. Our products meet or exceed the requirements of IEQ.13.1, Green Star Office Interiors, Indoor Environment Quality. We are a member of the Green Building Council of Australia.

Yet a low VOC level is not all that is required to make a coating sustainable. The arithmetic of the application and the durability is very important. If the system lasts longer, it's even better.

Underperforming systems will always have greater environmental impact due to re-installation costs (surface preparation energy, disposal and then the impact of the re-application itself).





***We live in complex times*** where our focus needs to be on the sustainable goals of waste minimisation and waste recovery - reducing, reusing and recycling waste in all sectors of the economy.

Waste streams take many forms.

Household wastes - paper, cardboard, garden waste, kitchen waste, wood, textiles and disposable waste.

Handling operations here require high level abrasion and leachate protection. De-inking processes for paper and cardboard use chemical surfactants to wash or float ink and other particles away from fibres.

Plastic waste recovery involves sorting, granulation, washing, cleaning and full recycling of recovered items. This process involves hot washing and chemical decontamination.

Glass waste processing uses high temperatures to final recovery.

Commercial and industrial waste streams present demanding issues since they are diverse and include chemical processing and manufacturing industries and mining and distribution. They can include hostile hazardous wastes demanding higher level protection systems.

Assured containment of all hazardous waste is essential for the protection of both the environment and the workplace. Secondary containment must be resistant to exposure to the chemistry involved. Since their primary role is to keep hazardous materials where they belong, concrete structures must be well protected.

All waste facilities must be secure from chemical action and mechanical action.

EpiMax is your source for the latest proven developments in performance wall and floor protection systems. This is all we do. Our systems build on break-through technologies (extreme chemically resistant third generation epoxy novolac chemistry, high performance water based chemistry, new polyaspartic chemistry).

EpiMax has built its reputation on a construction engineering foundation. Our experience has been forged on an impressive variety of civil, environmental, industrial, mining, defence and general services construction.

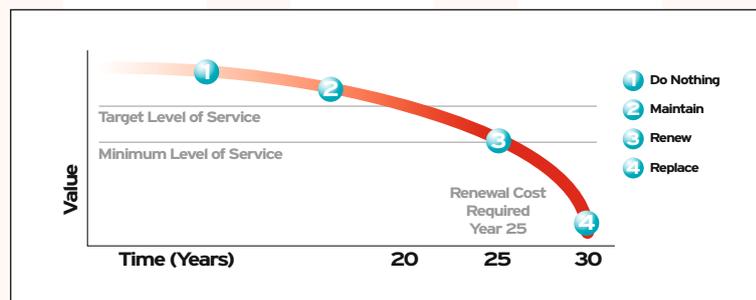
This success has been proven through partnerships with forward-thinking architects, consultants, engineers, application contractors, project managers and materials testing agencies. We believe in teamwork, respect and integrity.

Our primary focus is

- Floor Protection Systems
- Wall and Ceiling Protection Systems
- Industrial Concrete Protection Systems
- Green Certified Protection Systems
- Water and Wastewater Processing Protection Systems
- Foundation Protection Systems
- Extreme CAT (Corrosion, Abrasion and Thermal) Protection Systems

## ***EpiMax: Expertise Applied, Answers Delivered***

### **Typical Asset Depreciation**



## Applications

- All collection, transportation and processing phases
- Alternative waste processing
- Commercial and domestic waste operations
- Hazardous and industrial waste removal
- Incineration services
- Recycling infrastructure
- Secondary containment
- Wastewater treatment

## Types of waste and processes

- Automotive spent consumables
- Biomass processing
- Commercial kitchen
- General industrial chemicals
- Heavy metals (lead, mercury, cadmium, chromium)
- Herbicides and pesticides
- Oil and hydrocarbon sludge
- Resource and mining
- Pulp and paper
- Residential garbage and effluent



## EpiMax 222

Exceptional two-pack solventless epoxy protection system demonstrating excellent adhesion and general durability.

- Trowel application to 5+ mm
- Resistant to a wide range of industrial chemicals
- Certified traction levels available
- Anti-microbial formulation
- Tough and abrasion-resistant; excellent for heavy traffic
- Ideal for wet areas, ramps etc



## EpiMax 330

Latest solventless high build technology providing high chemical resistance.

- Resists a wide range of chemicals
- Can be reinforced with glass surfacing veil
- Food safe application during and after application phase
- Wide range of colours
- Potable water approved



## EpiMax 330RF

A high-performance, fibre reinforced wall coating for maximum protection against physical abuse, acids and alkalis.

- Can be applied up to 1 mm directly to concrete
- Low VOC compliant
- Resists a wide range of chemicals
- Easily cleaned and sanitised - toughest mechanically
- Food safe application during and after application phase



## EpiMax 333AR

A two-pack high solids novolac coating system demonstrating outstanding chemical resistance and adhesion.

- Roller or airless spray application to 300 microns in two coats
- Self priming
- Highly resistant to splashes and spills of mineral acids etc
- Selected for harsh industrial and mining applications
- Ideal for keeping hazardous liquids where they belong





## EpiMax 421HAR

Exceptional two-pack high functionality novolac coating system demonstrating highest chemical resistance and adhesion.

- Roller or airless spray application to 300 microns in two coats
- Highest resistance to splashes and spills of mineral acids etc
- Self priming
- Selected for harshest industrial and mining applications



## EpiMax 465

This system offers excellent thermal shock resistance and also resists abrasion, mechanical stress and mid range chemical action. Installation is fast and placement is easy.

- Application at 4 - 5 mm
- Fast application - minimal downtime
- Extreme mechanical performance
- Excellent thermal shock resistance
- Good chemical resistance
- Easy to clean and sanitise



## EpiMax 469

Concrete protection of the highest order. This system offers the highest thermal shock resistance and also resists abrasion, mechanical stress and mid range chemical action.

- Application at 9 mm
- Fast application - minimal downtime
- Highest thermal shock resistance
- Extreme mechanical performance
- Easy to clean and sanitise
- Good chemical resistance



## KilnGard 600SCW

Exceptional two-pack nano ceramic composite material for corrosive, abrasive, high temperature environments.

- Airless spray application to 500 microns per coat
- Resistant to HCl, SO<sub>3</sub>, SO<sub>2</sub>, CO<sub>2</sub> and NO<sub>x</sub>
- Excellent performance to 600°C
- Ultra hard - highest abrasion resistance
- Ideal for concrete and steel in hot, corrosive environments

## Different types of waste - not just a load of rubbish

*Waste management is the collection, transport, processing (waste treatment), recycling or disposal of waste materials, usually ones produced by human activity, in an effort to reduce their effect on human health or local aesthetics or amenities. A sub-focus in recent decades has been to reduce the effect of waste on the natural world and the environment and to recover resources from them.*

*Waste management can involve solid, liquid or gaseous substances with different methods and fields of expertise for each. Waste can also be non-hazardous or hazardous.*

*Waste management practices differ for developed and developing nations, for urban and rural areas, and for residential, industrial, and commercial producers. Waste management for non-hazardous residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management for non-hazardous and hazardous commercial and industrial waste is generally the responsibility of the generator.*

*Electrical and electronic equipment waste or "e-waste" is also one of the fastest growing waste streams, estimated to be growing at more than three times the rate of general municipal waste. This form of waste can contain dangerous metals such as lead, mercury and cadmium.*

### **Corrosive, abrasive environments - what are the issues?**

*All concrete deteriorates over time. The rate at which concrete deteriorates is a function of two overall factors.*

*The first factor affecting the deterioration of concrete, is the quality of the concrete itself. This refers to the properties incorporated into the original concrete mix design such as water/cement ratio, cement type, size and hardness of the aggregate and air entrainment. Quality is also dependent on the construction practices used to place the concrete such as proper consolidation, cover and curing.*

*The second factor affecting the rate of deterioration is the environment. Waste processing facilities present a severe environment for concrete. Concrete structures here, can be subjected to wet-dry cycling, chemical attack and abrasion. Even high quality concrete will deteriorate under these harsh conditions.*

*For this reason, it is essential to protect concrete, even good quality concrete, to increase durability.*



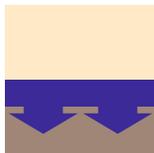
***Environmentally sustainable***



***Resistance to abrasion and impact***



***Durable***



***High adhesion***



***Resistance to chemicals***



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