

Worldwide Patent PCT/SG2015/0505244

**INDUSTRY CHALLENGES** *The greener alternative for anti-corrosion packaging*

 **SAVE A TREE, GO PAPER-FREE**

**Winner of the Promising SME 500 2016 Top 10 Special Achievement Award-Outstanding Eco-Green Award**

**Winner of the Singapore Star Packaging Award in the Environmental Sustainable Category**

**Vapro 830 VCI Mineral Stone Paper**  
Anti-corrosion technology with the environment in mind

**BACKGROUND OF VAPPRO 830 VCI MINERAL STONE PAPER**

The pulp and paper industry is the third-largest industrial polluter in Canada and the United States, releasing over 100 million kg of pollution per year into the environment. With pulp mills generating large amounts of by-products, which in turn contribute to air, water and land pollution, the industry accounts for 4% of the world's total energy usage. Discarded paper is a major component of landfill sites and accounts for about 35% of non-recycled solid waste. Even paper recycling contributes to pollution due to the sludge produced during de-inking. The industry uses more water to produce one tonne of product than any other industry.

Magna International recognises the importance of sustainability in every stage of the product lifecycle, from production to usage and disposal. The objective of Vapro 830 VCI Mineral Stone Paper is to provide a viable alternative to pulp-based standard anti-corrosion paper – without the use of trees, water, chlorine, acids or petroleum in production.

Vapro 830 VCI Mineral Stone Paper consists of minerals such as calcium carbonate, one of the most common substances on the planet. It is found in the shells of marine organisms, pearls, and eggshells, or as natural by-products of water and limestone in quarries.



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INDUSTRY CHALLENGES

The greener alternative for anti-corrosion packaging

# Solving Corrosion Problems with the Environment in Mind

## Description

Comprising calcium carbonate, silica powder, polypropylene resin and proprietary Vappro VCI corrosion inhibitors, Vappro 830 VCI Mineral Stone Paper protects against corrosion in both ferrous and non-ferrous metals. Unlike pulp-based VCI paper, Vappro 830 VCI Mineral Stone Paper is UV resistant and anti-static, effectively inhibiting the onset of corrosion.

Vappro 830 eliminates package contamination found in conventional VCI/VPI papers by doing away with complex application systems in favour of a simple, two-step process:  
(1) Wrap metallic parts in the paper, folding edges together; and  
(2) Use adhesive tape as needed to hold paper folds in place.



Vappro 830 VCI Mineral Stone Paper Roll

Vappro 830 VCI Mineral Stone Paper is designed to reach every part of the metal surface, providing complete corrosion protection without altering the product's appearance.

The unique inhibiting action of Vappro VCI forms a thin, protective layer that does not require removal before further finishing or use.

The protective layer does not influence physical properties of most sensitive electrical components, including conductivity and resistance. This allows for normal usage of metallic parts including painting, welding, and soldering

**R**educes carbon emissions — **R**eusable — **R**ecyclable

## RoHS Compliance

The European Union (EU) Directive on Restriction of Hazardous Substances (RoHS) restricts the use of harmful substances which may be detrimental to the environment and consumers. Magna Group recognises the importance of product performance and environment sustainability. Our products undergo rigorous testing for QHSE (Quality Health Safety and Environment) management, and are certified by Bureau Veritas as RoHS compliant. Magna is pleased to assure our current and potential customers that our products are free of any of the restricted substances stated in the Directive (2002/95/EC).



PRODUCT INFORMATION

# Features & Benefits

✓	Environmentally friendly
✓	Non-pulp based product
✓	Eliminates the use of trees
✓	Multi-metal protection
✓	UV-resistant
✓	Excellent water-resistant
✓	Reusable and recyclable
✓	Essentially non-toxic
✓	Does not contain nitrites, phosphates, silicones, chromates, or other heavy metals
✓	Conforms to military specifications MIL-P-3420E
✓	Protective layer does not need to be removed prior to further surface finishing or coating applications
✓	Protects dry or oiled metals during storage, transit, and overseas shipment
✓	Combines corrosion protection and packaging into one
✓	Viable alternative to conventional pulp-based VCI paper
✓	Allows normal usage of protected metallic parts including painting and welding

## Cost-effective ,Total Corrosion Control with VAPPRO VCI



Eliminates oiling process

Vapro VCI gives total corrosion protection during shipment or storage

Removes process of degreasing and cleaning

**VAPPRO SOLUTIONS**  
PROTECTIVE PACKAGING SOLUTION  
**packaging industry**



Bearings protected with ordinary kraft paper

Bearings protected with Vapro 830 VCI Mineral Stone Paper Roll

### TYPICAL APPLICATIONS

Vapro VCI Mineral Stone paper can be used to protect products for storage and shipment in a wide variety of ways: wrap for single item packaging or interleaving; end closures for shipping tubes, insert strips for recessed areas in large packages, and as sheet liners or separators between products.

**Metal producing:** coils, wire reels, plate, bar, etc.

**Metal forging and die casting:** raw and machined forgings and castings.

**Metalworking:** stamping, sheet metal work, springs, bearings, fasteners, tube, pipe, nails, etc.

**Finished products:** engines, machinery, equipment, tools, hardware, appliances, instruments, motors, etc.

Electrical and electronic components, controls, etc.

### METHOD OF APPLICATION

Products should be packaged as soon as possible after cleaning, completely dried of residual water.

Keep Vapro 830 VCI Mineral Stone Paper as close to the surface of the product as practical, leaving no barrier between the VCI Mineral Stone Paper and the metal surface.

Use approximately 1 square foot of Vapro VCI Mineral Stone Paper for every 4 square feet of surface to be protected; and 1 square foot of VCI Mineral Stone Paper for every 1 cubic foot of void space. For long term storage of up to five years, enclose wrapped product in an airtight package.

<b>PROTECTION FOR MULTI-METALS</b>	✓ Copper	✓ Brass	✓ Carbon Steel
	✓ Cast Iron	✓ Cadmium	✓ Galvanized Steel
	✓ Aluminium Alloys	✓ Silver	✓ Aluminized Steel
	✓ Zinc	✓ Copper-Nickel Alloys	
	✓ Magnesium Alloys	✓ Stainless Steel	

## WIDEAPPLICATIONS

**VAPPRO SOLUTIONS**  
PROTECTIVE PACKAGING SOLUTION  
**packaging industry**



**Vapro 830 VCI Mineral Stone Paper Roll**



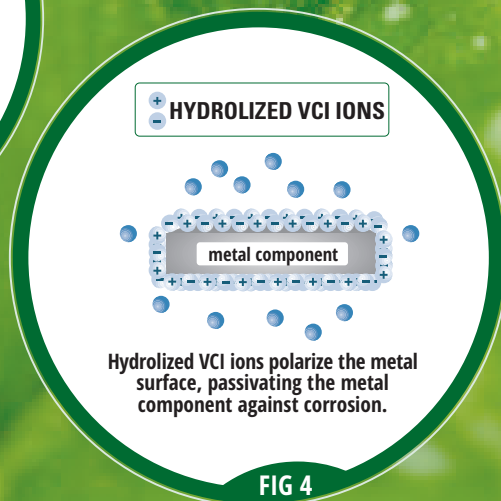
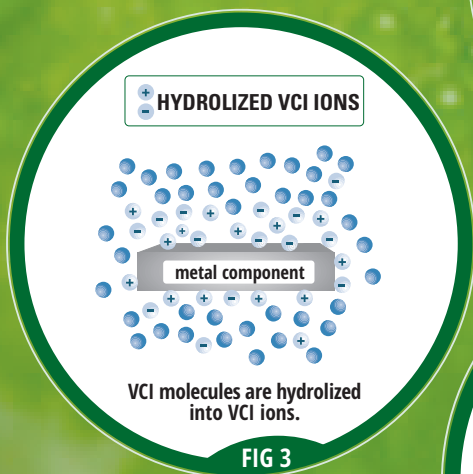
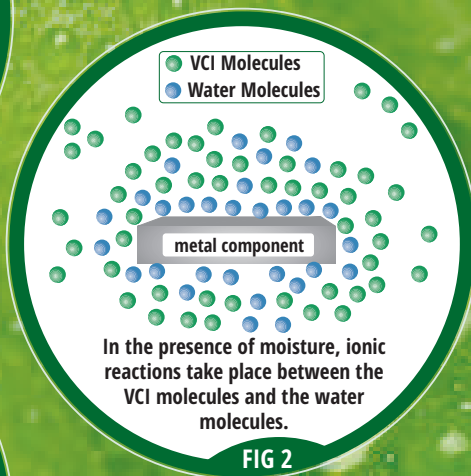
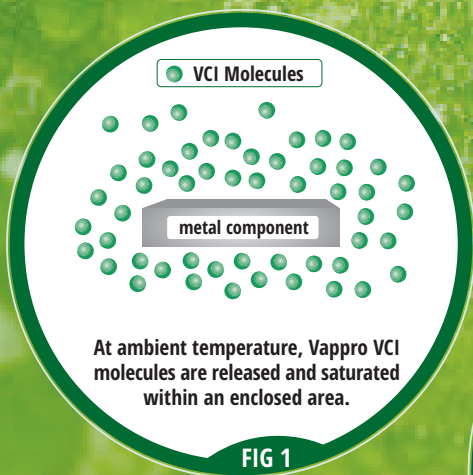
**Vapro 830 for Corrugated Packaging Solutions**



**Vapro 830 Corrugated packaging for automotive parts**

ADVANCED VCI TECHNOLOGY

# How does VAPPRO VCI work?



## About VAPPRO technology

Magna Group set out to develop an advanced and environmentally-safe VCI technology to combine quality and versatility. VAPPRO, or Vapour-Phase-Protection, is the foremost state of the art technology in corrosion prevention available in the industry today.

VAPPRO's innovative VCI technology has earned the recognition and confidence of customers across various sectors including the electronics, IT, automotive and packaging industries. VAPPRO's products conform to U.S. Military specifications, attesting to their quality, integrity and cost-effectiveness.

Magna Group's R&D team continues to support VAPPRO's international footprint by creating new products while improving on existing ones, adapting to the evolving needs of the market.

## Applications

- ▶ To protect against corrosion of parts, components and completed assemblies during shipping and storage.
- ▶ Tools, spare parts and components.
- ▶ Bin and box liners.
- ▶ Motors and mechanical controls.
- ▶ Electrical equipment and controls.
- ▶ Long tubular products and pipe.

## COMPANY INFORMATION

# Magna group

Magna Canada  
Regional Office

Magna International  
Head Office

Magna Australia  
Regional Office

### INTRODUCTION

Magna Group of Companies consists of Magna International Pte Ltd, Magna Far East Pte Ltd, Magna Canada Inc, Magna Australia Pty Ltd and Magna Energy Pte Ltd. The Magna Group is one of the world's foremost leaders in the specialized fields of corrosion-preventive technology, specialty lubricants and cleaning surfactants. Since its incorporation in 1990, first starting out as a manufacturer and distributor of cleaning and maintenance chemicals, the Magna Group has now carved itself a niche in the area of specialty surfactants, lubricants and additives. The products of the Magna Group are marketed under the brands Vapro, Corpro and Lupromax.

Represented by distributors in more than thirty countries in the NAFTA Region, Asia Pacific and Europe, the Magna Group is continually reinventing itself to accommodate the ever-present changes in the chemical industry. We at Magna make use of the powers of innovation, science and technology to satisfy customers' requirements.

Magna has established itself as a brand of excellence. Over 180 products are listed in the NATO Master Cross Reference List (MCRL), with individually assigned NATO Stock Numbers for easy reference.

Magna's focus on technical expertise, operational excellence, and its range of practical yet environmentally-friendly products has netted us the certification of the ISO 9001:2000. Magna Group is committed to achieve our mission of improving the lives of consumers, satisfying the needs of customers, and continuing our contribution to the chemical



With company headquarters in Singapore, the Magna Group's in-house Research & Developments team has made milestone achievements in corrosion-preventive technology, water treatment chemicals, lubricants and specialty surfactants.

### MAGNA INTERNATIONAL PTE LTD

Magna International Pte Ltd, an innovative chemical company that manufactures specialty chemical products, was incorporated in September 1992.

Our specialty chemical products are represented in 25 countries in the Asia Pacific Region and Europe.

### MAGNA (FE) CHEMICAL PTE LTD

Magna (FE) Chemical Pte Ltd is a fast growing company that manufactures environment friendly, biodegradable products for a cleaner, greener, better tomorrow. It was incorporated in 8th August 1990 specializing in the blending and distribution of cleaning and maintenance chemicals.

Magna (FE) Chemical Pte Ltd is a registered contractor with the Ministry of Finance Expenditure and Procurement Policies Unit (EPPU), and Construction Industrial Development Board (CIDB).

Magna (FE) Chemical is currently supplying chemical products to Government Departments, Statutory Boards and various Government-Linked Companies. The factory is based at Enterprise Road, where both manufacturing and administrative functions are carried out. Research is also carried out in-house to create new chemical products and to improve existing products.



PROTECTIVE PACKAGING SOLUTIONS  
**Advancing environmentally-friendly  
corrosion control technologies**

[www.vapprovci.com](http://www.vapprovci.com)



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