



Henkel Surface
Technologies

VCI GARDAC® serial 1000

VOLATILE CORROSION INHIBITORS

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BRIEF ANSWERS TO FREQUENTLY ASKED QUESTIONS

I. HISTORY OF GARDAC VCIs

At the beginning of the 20th century, ammonia was used as a volatile corrosion inhibitor in steam boiler circuits to protect both immersed and exposed parts.

It was only in the early 40s that less odorous, more effective and a little less dangerous active substances began to be used industrially (salts of dicyclohexyl amine). Papers impregnated with this type of active substance, known as VPI papers are still in circulation today in Europe.

In the 70s, in the USA, various companies investigated other active substances and other substrates than paper. Novel products appeared on the American market in the early 80s. Some years later, they arrived in Europe, imported by dealers.

Today, in response to various constraints (particularly the need to find simplified processes and performance and cost optimised packaging), demand has grown in the European market for these new products, which have since proved themselves in the USA.

II. AVANTAGES OF THE VCI TECHNOLOGY

Compared to traditional oiling

Easy to use: No more coating of parts with liquid corrosion inhibitors. No oiling cabinets required. No need to buy oils.

Clean and safe: No more oiling stations generating slippery splashes and smells throughout workshops. No dripping during transport and storage of crates of parts.

Commercial advantage: No more collapsing boxes that have been softened by liquid corrosion inhibitors. Better presentation of your products to your clients. No dust or insects sticking to parts. Parts can be painted or assembled directly on arrival without prior degreasing. No more machines to wash parts and containers, no need to buy detergents.

High-quality protection: Provided the basic rules have been observed and the packaging is kept closed, metal parts will remain completely protected for at least 5 years.

Ecological: At their destination, VCIs are can be reused, recycled or combusted for energy recovery, which is rarely possible with protective oils.

Economical: Process simplification for you and your clients (elimination of oiling stations at source and degreasing stations at destination).

Productivity enhancers: Parts are available directly on arrival; no need for wearisome "pretreatment" stages (just unpack the parts), ideal for JIT.

Compared to desiccants (or dehydrators)

Easy to use: No need to ensure 100% air-tight sealing around the part, no need to dispose of numerous sachets of desiccants contained in the packaging, no need for costly humidity indicators.

Commercial advantage: Unlike aluminised barrier films, VCIs are generally transparent, making it possible to see, identify and check parts still in their packaging all along the transport and storage chain. Your products are also better presented.

High-quality protection: Provided the basic rules have been observed and the packaging is kept closed, metal parts will remain completely protected for at least 5 years.

Care for fragile equipment: Since the relative humidity inside the packaging is the same as the ambient humidity, electronic equipment will be less susceptible to ESD, and polymers will retain their mechanical properties.

Economical: Less consumables and less labour required during packaging, less packaging waste.

Productivity enhancer: Quicker and cheaper packaging, direct visual inspection of parts along the entire logistic chain, durable protection with no need for costly repackaging/intermediate treatment.

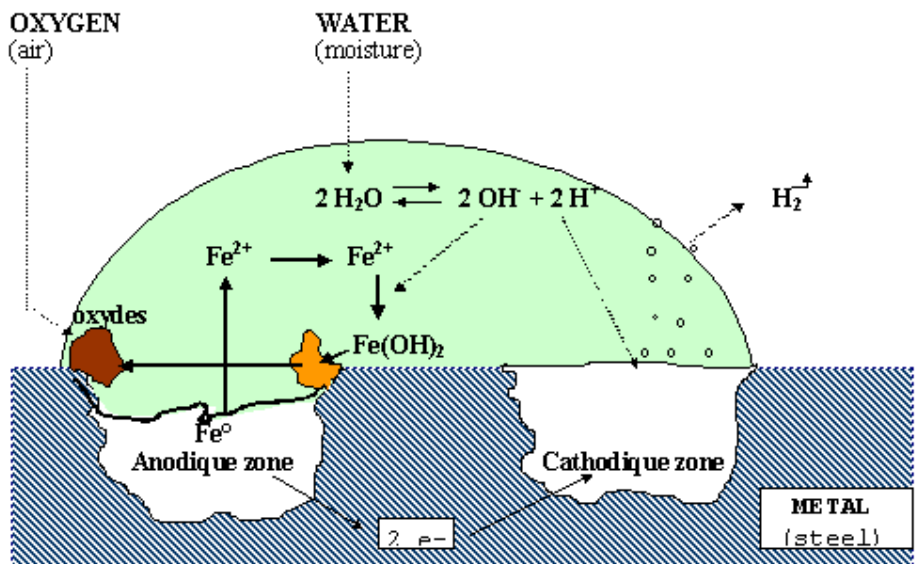
III. FUNCTION PRINCIPLE OF GARDAC VCIs

The appearance of "rust" on ferrous parts is the result of simultaneous chemical reactions of oxidation and reduction at the surface of "cathode" and "anode" micro-zones.

However, these reactions will only trigger and continue if metallic ions can circulate outside the metal between the "cathode" and "anode" zones.

Most frequently, metallic ions will circulate in the very fine film of water that is absorbed by the surface of metals when the relative humidity rises above 40% (which is practically always the case in our latitudes).

WITHOUT VOLATILE CORROSION INHIBITORS



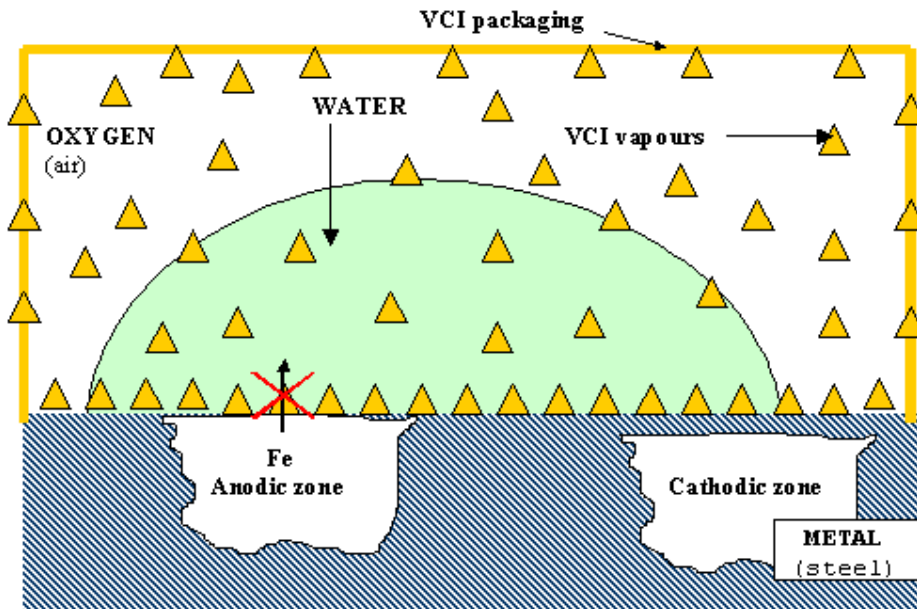
Metallic ions can circulate in the film of absorbed water = start of the corrosion process.

To avoid this, one can protect the metal using a physical film (oil, varnish, metallisation, paint), bind the water (dehydrators), remove the oxygen (either by vacuum or nitrogen packaging). But the least costly and most efficient method is to leave the metal uncoated, leave the water and oxygen in place, while preventing the migration of metallic ions.

Certain chemical molecules emit vapours that block the metallic ions present in water. All that is needed is to place the metal parts to be protected in an enclosure that is as tightly sealed as possible, then to saturate the air inside this enclosure with these inhibitor molecules in the vapour phase.

In the presence of these inhibiting vapours, the metal, water and oxygen are still all there, but the water will no longer allow metallic ions to migrate, and oxidation and reduction reactions cannot start. No oxide will develop. The condensed water and the oxygen have been rendered "harmless" to the metal.

WITH VOLATILE CORROSION INHIBITORS



The active substance contained in the VCI substrate goes into the vapour phase, the vapours saturate the atmosphere confined within the packaging, then the film of water on the parts. The water which would otherwise have served as an electrolyte to attack the metal becomes an aqueous anticorrosive solution.

This corrosion protection is assured as soon and as long as the protecting vapours are sufficiently dense around the metallic surface (sealed and not too old packaging).

When the packaging is opened, the density of protective vapours around the part decreases within several minutes, leaving the metal in the same state as before the protection was applied. Parts can be welded, phosphated, painted, assembled or put into operation immediately and without any constraints.

It is advisable to unpack parts only when needed, since each part that has been taken out of its packaging prematurely and left without further protection will again be susceptible to the corrosive potential of the ambient surroundings.

IV. IMPACT OF VCI GARDAC serial 1000 ON THE ENVIRONMENT

We do not use any product listed as harmful in the various environmental laws and regulations (see SDS at the end of the brochure).

We guarantee that our articles do not contain any chloride or fluoride compounds, freons, sulphur, or heavy metals (no molybdates). Due to their low vapour pressure, they are not affected by the forthcoming European legislation on VOCs (volatile organic compounds).

V. IMPACT OF VCI GARDAC serial 1000 ON OPERATORS

Some years ago, certain formulations contained compounds of the cyclic amine or molybdate type. These were certainly efficient, but were irritants affecting the skin, mucous membranes and respiratory tract.

Since then, it has been proved that combinations of certain food antioxidants can produce volatile corrosion inhibiting properties. We have chosen a mix of molecules of this type for our range of products.

The choices that we have made in terms of quality and quantity mean that, unlike other types of chemicals available on the market, none of the products in the VCI GARDAC serial 1000 range require labelling as dangerous substances.

VI. WHAT RULES DO I HAVE TO OBSERVE TO ENSURE GOOD PROTECTION OF MY PRODUCTS WITH GARDAC VCIs ?

VI.1 Make sure parts are metallurgically clean

The anticorrosive protection will only become fully effective when the active vapours have saturated the air around the parts. Any corrosion mechanisms that have been triggered before the parts were packaged with GARDAC VCIs will continue until the protecting vapours have become sufficiently dense.

It is therefore essential to pack the parts in GARDAC VCI products free of rust immediately following machining, degreasing, shot peening or final rinse.

VI.2 Make sure the parts are physically clean

The protective vapours can only protect a part if they can actually reach its surface. Organic residues and deposits of mineral salts will promote local corrosion phenomena and prevent the vapours from reaching these spots.

Always clean parts physically before packing them.

VI.3 Make sure the parts are chemically clean

Like almost all temporary corrosion inhibitors, GARDAC VCIs are tools that make it possible to stop climatic corrosion reactions (metal + water + oxygen).

Like almost all temporary corrosion inhibitors, GARDAC VCIs make no claim to control acidic corrosion reactions (particularly those involving hydrochloric acid).

Consequently, it is advisable not to pack any parts in GARDAC VCIs if their surfaces have been chemically polluted by halogen compounds, the most common of which is currently chlorine.

During the entire manufacturing process up to packing, it is strongly recommended to avoid all contact between the parts and the following:

1. Undiluted machining or deep-drawing oils containing more than 100 ppm of chlorine.
2. Organic degreasing agents containing more than 100 ppm of chlorine.

3. Aqueous fluids (detergents or rinses) containing more than 250 ppm of chlorides.
4. Fingerprints (to be avoided in all cases).

VI.4 Temperature of parts

Never close a GARDAC VCI package when the temperature of the parts is 20° above the ambient (or outside temperature if the parts are to be transported within one hour of packing). Leave the top of the GARDAC VCI package open until the parts have attained a temperature close to the ambient temperature level.

VI.5 Humidity of the parts

Do not pack parts with water drops on. This liquid phase will take some hours before being saturated with VCI vapours, and oxidation phenomena can occur during this time. It is recommended to blow and to dry mechanical parts before VCI packaging.

VI.6 Hermeticity

The packaging does not have to be totally air-tight, but should be as tight as possible. The degree of containment is the factor determining the durability of the anticorrosive effect.

Vacuum packing is not required.

VI.7 Sizing of packages

Observe the ratios given in our technical documentation regarding the surface to be protected/active packaging surface. In our experience, the recommended ratios for polyolefin films to ensure protection of a part during sea transport + 5 years of storage under standard conditions are 0.6 m² active surface of GARDAC VCI per 1 m² of developed surface of the part.

For JIT shipments, it is possible to reduce this ratio to 0.4/1 or 0.2/1.

For deliveries under severer conditions (tropical or for more than 5 years) we recommend ratios of 0.8/1, or 1/1. To achieve these higher ratios, it may be necessary to include additional GARDAC VCI packaging elements, e.g. VCI intermediate formats, VCI interlays, small VCI squares distributed among the parts, etc.

VI.8 Effective radius of vapours

Beyond a certain distance, the vapours emitted by a VCI substrate will be less effective.

No sensitive surface of the part to be protected should be more than 500 mm from an active GARDAC VCI surface.

VII. HOW DO I CLOSE MY PACKAGING TO ENSURE CONTAINMENT ?

The degree of containment necessary for proper functioning of GARDAC VCI can be obtained by folding the film and fixing it in place with adhesive tape or metal staples. The ideal closing method is, of course, heat sealing.

Note: Remember that there are two main types of heat sealers on the market, those with continuous heating for aluminised polyester sheeting and those with pulsed heating for polyolefin films. The latter type is the one required for GARDAC VCIs.

To heat seal 2 GARDAC VCI polyethylene films of 100 µm thickness, we recommend the following parameters: pulsed heat sealer, temperature 190°C, jaw closing pressure 3 bar, heating time 3 seconds + 2 seconds pressure holding time after the heating cycle has finished. For other film thicknesses, vary the heating time.

VIII. WHAT FORMS DO GARDAC VCIs COME IN ?

To cater to a wide variety of packaging problems, our active substances are provided in a range of different forms:

- Aqueous liquids for prior application to cardboard packaging material (individual boxes, interlays, multiple packs), or oily liquids to pour into lubricant or fuel circuits.
- Polyethylene films, plain, with backing, or bubble films.
- Polyethylene sleeves, straight or bellows-type.
- Polyethylene bags for packing one or more parts. Remember to close these (with rubber bands, staples, by heat sealing, etc.)
- Polyethylene slip covers to line the bottom of a container or cover a pallet. Remember to close these (by banding, shrink wrapping, heat sealing, etc.)
- Small plastic squares or capsules to be packed along with the parts within a tight enclosure.
- Small-diameter tubing for insertion into metal tubes or blind holes.
- Honeycomb or solid polyethylene sheets for thermoforming.
- Other forms on request

Please consult the attached product catalogue which contains our standards.

HOW DO I CHECK WHETHER A GARDAC VCI PACKAGE IS ACTIVE ?

All our VCI GARDAC serial 1000 items are checked beginning, middle and end of batch. Less efficient items, regarding VCI properties, are destroyed on their production site.

If a VCI GARDAC serial 1000 item has been stored in convenient conditions and if it is less than 3 years old from his extrusion, you can say that this item is operational. It is not necessary to re-check it.

X. PROTECTED METALS ?

VCI GARDAC serial 1000 are efficient against climatic corrosion of steels, cast irons, zinc coated steels, tin coated steels, copper alloys, aluminium alloys, silver, nickel, and combinations of these metals.

XI. HOW LONG DOES THIS PROTECTION REMAIN EFFECTIVE ?

We have found that, provided the basic rules for packaging with VCI GARDAC serial 1000 are observed, steel or cast iron will not rust for 5 years.

This figure is an average figure, which will vary according to the degree of containment of the package, the severity of the climatic conditions and the part/emitter surface ratio.

XII. HOW CAN MY CLIENT DISPOSE OF USED GARDAC VCI PACKAGES?

Polyolefin VCI GARDAC serial 1000 articles are reusable, recyclable, and can ultimately be combusted in classic incinerators to recover their calorific energy, just like normal polyolefins, without emitting any halogens or heavy metals (see recycling symbols on the products).

XIII. WHY RELY ON HENKEL FOR THIS TYPE OF PRODUCT ?

Your main concern is to supply to your clients parts that conform to specifications in terms of metallurgy, dimensional accuracy, and are not oxidised.

We are expert consultants for and suppliers of anticorrosion materials.

We design, produce and supply to all types of industries the world over lubricants, degreasing agents and temporary protection products that are mutually compatible to guard against any unwanted chemical interactions between your various consumables and above all to prevent your products from corroding.

We have amassed 10 years of experience applying GARDAC VCIs in all industrial sectors.

At Henkel, we design our GARDAC VCI formulations in our own in-house laboratories and have perfected the production processes for all GARDAC VCI articles.

In most cases, Henkel processes will be used to achieve the final protection of your parts after storage and/or shipping. So we, more than any other supplier, have a vested interest in ensuring that your parts will be perfectly protected and compatible with subsequent finishing operations.

Within the scope of ISO 14001, we can support you in managing and recycling GARDAC VCI articles after their use.

In line with Henkel policy, the health and safety data sheets of our GARDAC VCI products are not subject to any special restrictions.

We are certified to ISO 9001.

We are listed as class A suppliers to PSA, RENAULT and RVI.

Our VCIs are approved to RENAULT PSA HSP C4010

GARDAC products have been judged by EDF as the only volatile corrosion inhibitors on the market that conform to their PMUC regulations (products and materials utilisable in power units) . Agreement EDF / GARDAC No. PMUC 05077 to CSCT/43/92/2618 Index 4 .

We have Henkel HST representatives on several continents who are capable of providing your overseas plants, your suppliers and your clients with the same high standard of anticorrosion expertise and GARDAC VCI technology.

XIV. RANGE OF GARDAC VCI PRODUCTS ?

We can offer you a wide array of volatile corrosion inhibitors, as listed on the following pages.

Main of them are on stock, they are printed in bold type.

Usual delivery time : under 10 days.

Others, too recent or with small turn over have *no guaranteed stock*, they are in *italic type*.

Usual delivery time : 6 weeks for the first order, 10 days after.

For all products not listed in this catalogue, please consult us, stating the proposed annual quantities.

XV. WHERE CAN I GET MORE PRECISE DETAILS ?

To obtain more detailed information, please contact your closest Henkel VCI champion :

ASIA

Japan :

Tadashi Tanaka phone + 81 3 5769 6401 mail : tadashi.tanaka@henkel.co.jp

Singapore :

Bernard Choo phone + 65 266 0200 mail : bernard.choo@henkel.com

AMERICAS

USA :

Bill Ladley phone : + 1 248 589 4642 mail : bill.ladley@hstna.com

Mexico :

Leonardo Olmedo phone + 52 5836 1218 mail : leonardo.olmedo@henkel.com

Brasil :

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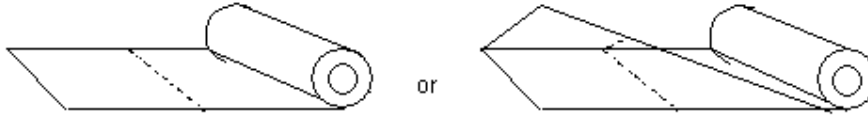
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Sema Eyuboglu phone + 90 262 653 27 00 mail : sema.eyuboglu@henkel.com

UK :

Keith Shipton phone + 44 1980 313 344 mail : keith.shipton@henkel.co.uk

VCI PRE-CUT UP FORMATS



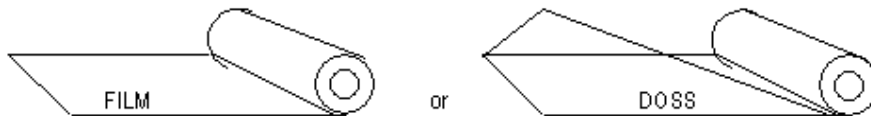
Product name	Delivery form pre-cut up formats transparent yellow delivered in rolls	Width (mm)	Lenght (mm)	Number of format/roll	Thickness (microns)	Sales unit
GARDAC FORM 1786	flat format	200	300	1000	50	Roll of 2,8 kg
GARDAC FORM 1843	flat format	250	350	1500	50	Roll of 6.0 kg
<i>GARDAC FORM 1819</i>	<i>flat format</i>	<i>300</i>	<i>400</i>	<i>2000</i>	<i>50</i>	<i>Roll of 11.0 kg</i>
GARDAC FORM 1824	flat format	400	600	1000	50	Roll of 11.0 kg
<i>GARDAC FORM 1949</i>	<i>flat format</i>	<i>400</i>	<i>800</i>	<i>500</i>	<i>75</i>	<i>Roll of 11.1 kg</i>
<i>GARDAC FORM 1905</i>	<i>flat format</i>	<i>550</i>	<i>750</i>	<i>500</i>	<i>50</i>	<i>Roll of 9,5 kg</i>
<i>GARDAC FORM 1846</i>	<i>flat format</i>	<i>700</i>	<i>800</i>	<i>1000</i>	<i>50</i>	<i>Roll of 25,9 kg</i>
GARDAC FORM 1778	flat format	1100	1200	546	75	Roll of 50.0 kg
GARDAC FORM 1835	folded / 2 format	1400	1400	300	50	Roll of 27.0 kg
		(2 X 700)				
GARDAC FORM 1829	folded / 2 format	1400	1600	200	75	Roll of 31.0 kg
		(2 x 700)				
<i>GARDAC FORM 1940</i>	<i>folded / 2 format</i>	<i>1500</i>	<i>1650</i>	<i>200</i>	<i>75</i>	<i>Roll of 34,3 kg</i>
		(2 x 750)				
<i>GARDAC FORM 1941</i>	<i>folded / 2 format</i>	<i>1500</i>	<i>1900</i>	<i>150</i>	<i>75</i>	<i>Roll of 29.7 kg</i>

		(2 x 750)			
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Bold type : items on stock

Italic type : non guaranteed stock

VCI FILMS



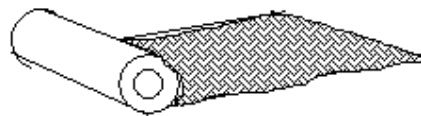
Product name	Delivery form roll of endless transparent yellow film	Width (mm)	Length (m)	Thickness (microns)	Sales unit
<i>GARDAC FILM 1826</i>	<i>Flat film</i>	95	607	150	<i>Reel of 8 kg</i>
GARDAC FILM 1783	Flat film	400	270	200	Reel of 20 kg
GARDAC FILM 1785	Flat film	500	217	200	Reel of 20 kg
GARDAC FILM 1712	Flat film	550	198	200	Reel of 20 kg
<i>GARDAC FILM 1915</i>	<i>Flat film</i>	750	180	200	<i>Reel of 25 kg</i>
GARDAC FILM 1909	Flat film	1100	983	50	Reel of 50 kg
GARDAC FILM 1799	Flat film	1100	658	75	Reel of 50 kg
<i>GARDAC FILM 1896</i>	<i>Flat film</i>	1100	491	100	<i>Reel of 50 kg</i>

GARDAC FILM 1727	Flat film	1100	330	150	Reel of 50 kg
GARDAC FILM 1734	Flat film	1500	180	200	Reel of 50 kg
<i>GARDAC FILM 1897</i>	<i>Flat film</i>	<i>1600</i>	<i>338</i>	<i>100</i>	<i>Reel of 50 kg</i>
GARDAC FILM 1914	Flat film	2000	270	100	Reel of 50 kg
GARDAC DOSS 1742	Folded in 2 film	3000	90	200	Reel of 50 kg
GARDAC DOSS 1757	Folded in 2 film	4000	135	200	Reel of 100 kg
<i>GARDAC DOSS 1775</i>	<i>Folded in 4 film</i>	<i>5000</i>	<i>108</i>	<i>100</i>	<i>Reel of 50 kg</i>
GARDAC DOSS 1732	Folded in 4 film	5000	108	200	Reel of 100 kg
<i>GARDAC DOSS 1788</i>	<i>Folded in 4 film</i>	<i>5870</i>	<i>123</i>	<i>75</i>	<i>Reel of 50 kg</i>

Bold type : items on stock

Italic type : non guaranteed stock

VCI TEAR PROOF FILMS



Product name	Delivery form	Width (mm)	Length (m)	Thickness (microns)	Sales unit
GARDAC FILM 1877	Flat film roll of endless transparent yellow film	1250	100	154	Reel of 19 kg

Attention this product is the only one of our range with one side VCI active

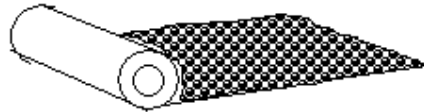
- smooth yellow side : VCI = active
- woven colorless side : non PAV = no active

Please use the smooth yellow side facing parts to protect

Bold type : items on stock

Italic type : non guaranteed stock

VCI BUBBLE FILMS



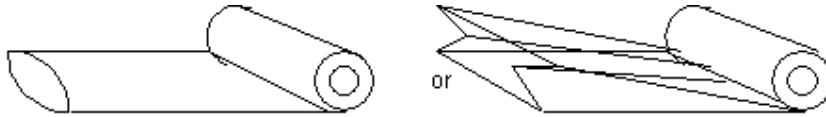
Product name	Delivery form roll of transparent yellow bubble film	Width (mm)	Length (m)	Bubble diameter (mm)	Thickness (microns)	Sales unit
GARDAC BULL 1967	Flat film	500	150	10	3	Reel of 5.6 kg
GARDAC BULL 1852	Flat film	750	150	10	3	Reel of 8.4 kg
GARDAC BULL 1968	Flat film	1000	150	10	3	Reel of 11.2 kg
GARDAC BULL 1851	Flat film	1500	150	10	3	Reel of 16.7 kg

Both sides are VCI active

Bold type : items on stock

Italic type : non guaranteed stock

VCI SLEEVES



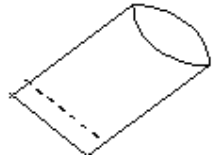
Product name	Delivery form roll of transparent yellow sleeve	Perimeter of sleeve (mm)	Length (m)	Thickness (microns)	Sales unit
GARDAC GAIN 1752	Tubular sleeve	126	200	150	Reel of 3,5 kg
GARDAC GAIN 1779	Tubular sleeve	160	340	100	Reel of 5 kg
<i>GARDAC GAIN 1924</i>	<i>Tubular sleeve</i>	<i>200</i>	<i>500</i>	<i>100</i>	<i>Reel of 9,3 kg</i>
<i>GARDAC GAIN 1932</i>	<i>Tubular sleeve</i>	<i>300</i>	<i>500</i>	<i>100</i>	<i>Reel of 13,9 kg</i>
GARDAC GAIN 1772	Tubular sleeve	400	540	100	Reel of 20 kg
<i>GARDAC GAIN 1918</i>	<i>Tubular sleeve</i>	<i>500</i>	<i>432</i>	<i>100</i>	<i>Reel of 20 kg</i>
GARDAC GAIN 1739	Tubular sleeve	600	360	100	Reel of 20 kg
GARDAC GAIN 1784	Tubular sleeve	630	229	150	Reel of 20 kg
<i>GARDAC GAIN 1926</i>	<i>Tubular sleeve</i>	<i>700</i>	<i>3090</i>	<i>100</i>	<i>Reel of 20 kg</i>
GARDAC GAIN 1804	Tubular sleeve	800	135	200	Reel of 20 kg
GARDAC GAIN 1780	Tubular sleeve	800	270	100	Reel of 20 kg
GARDAC GAIN 1781	Tubular sleeve	1000	270	100	Reel of 25 kg
GARDAC GAIN 1723	Tubular sleeve	1700	318	100	Reel of 50 kg
GARDAC GAIN 1740	Gusset sleeve	2470	150	150	Reel of 50 kg
GARDAC GAIN 1768	Gusset sleeve	4700	115	200	Reel of 100 kg

Bold type : items on stock

Italic type : non guaranteed stock

Attention : First column of figures is Perimeter ; Diameter when open is : $\text{Perimeter} / 3.14$

VCI BAGS



Product name	Delivery form Box of transparent yellow bags	Width (mm)	Lenght (mm)	Thickness (microns)	Sales unit	
					Box of de x bags	
<i>GARDAC SACH 1869</i>	<i>Bags</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>1000</i>	<i>10000</i>
<i>GARDAC SACH 1947</i>	<i>Bags</i>	<i>100</i>	<i>150</i>	<i>100</i>	<i>650</i>	<i>6500</i>
GARDAC SACH 1836	Bags	100	200	100	500	5000
GARDAC SACH 1831	Bags	100	300	100	350	3500
GARDAC SACH 1761	Bags	100	550	100	200	2000
GARDAC SACH 1790	Bags	100	650	100	150	1500
<i>GARDAC SACH 1751</i>	<i>Bags</i>	<i>100</i>	<i>1000</i>	<i>100</i>	<i>100</i>	<i>1000</i>
GARDAC SACH 1800	Bags	150	150	100	500	5000
GARDAC SACH 1833	Bags	150	250	100	250	2500
GARDAC SACH 1718	Bags	150	500	100	100	1000
<i>GARDAC SACH 1935</i>	<i>Bags</i>	<i>200</i>	<i>250</i>	<i>100</i>	<i>200</i>	<i>2000</i>
GARDAC SACH 1747	Bags	200	300	100	150	1500
<i>GARDAC SACH 1939</i>	<i>Bags</i>	<i>200</i>	<i>500</i>	<i>100</i>	<i>100</i>	<i>1000</i>
<i>GARDAC SACH 1925</i>	<i>Bags</i>	<i>250</i>	<i>300</i>	<i>100</i>	<i>125</i>	<i>1250</i>
<i>GARDAC SACH 1944</i>	<i>Bags</i>	<i>300</i>	<i>350</i>	<i>100</i>	<i>100</i>	<i>1000</i>
GARDAC SACH 1709	Bags	300	500	100	50	500
GARDAC SACH 1710	Bags	300	650	100	50	500
GARDAC SACH 1880	Bags	350	400	100	75	750
GARDAC SACH 1793	Bags	350	600	100	50	500

Bold type : items on stock

Italic type : non guaranteed stock

VCI BAGS (continued)

Product name	Delivery form Box of transparent yellow bags	Width (mm)	Lenght (mm)	Thickness (microns)	Sales unit	
					Box of de x bags	
GARDAC SACH 1767	Bags	400	500	100	50	500
GARDAC SACH 1717	Bags	500	650	100	25	250
GARDAC SACH 1792	Bags	500	700	100	25	250
<i>GARDAC SACH 1866</i>	<i>Bags</i>	<i>550</i>	<i>650</i>	<i>100</i>	<i>25</i>	<i>250</i>
<i>GARDAC SACH 1948</i>	<i>Bags</i>	<i>600</i>	<i>450</i>	<i>100</i>	<i>40</i>	<i>400</i>
GARDAC SACH 1808	Bags	650	700	100	25	250
GARDAC SACH 1794	Bags	800	900	100	10	100
GARDAC SACH 1795	Bags	900	500	100	25	250

Bold type : items on stock

Italic type : non guaranteed stock

VCI BAGS, reclosable



Product name	Delivery form	Width (mm)	Lenght (mm)	Thickness (microns)	Sales unit	
	Box of transparent yellow bags				Box of de x bags	
GARDAC SACH 1737	Reclosable bags	100	100	80	1000	10000
GARDAC SACH 1738	Reclosable bags	150	150	80	500	5000
GARDAC SACH 1759	Reclosable bags	200	300	80	150	1500
GARDAC SACH 1760	Reclosable bags	300	500	100	50	500

Bold type : items on stock

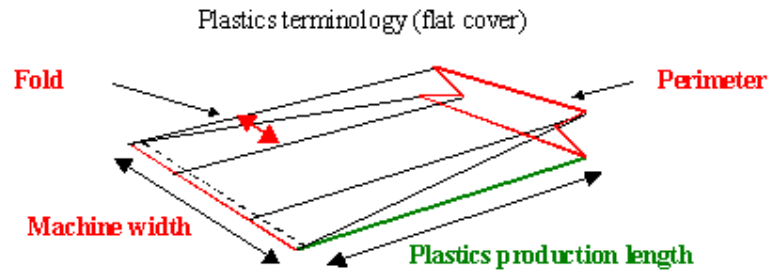
Italic type : non guaranteed stock

VCI SLIP COVERS

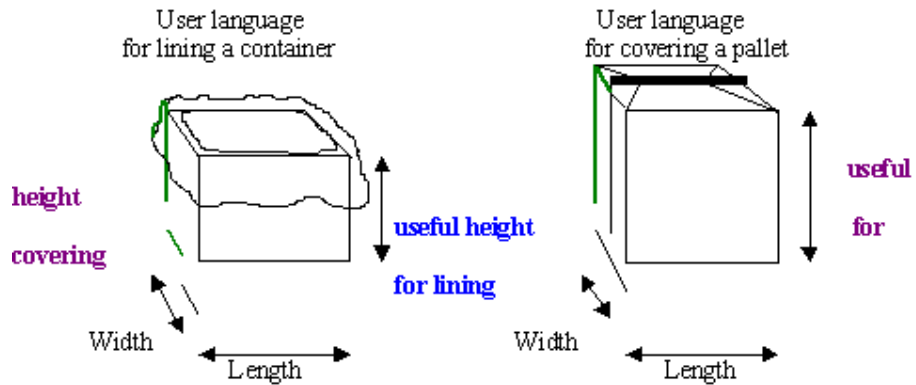
(presentation)

How to read the dimensions of a slip cover

(Do not confuse plastics manufacturing terminology with user terminology)



Expression : **machine width + fold x plastics production length x thickness (mm)**



Expression : **length x width x useful height** } **x thickness (mm)**

for lining
for covering

Delivery form of slip covers

- B = box of fully cut up slip covers
- R = roll of pre-cut up slip covers
- P = pallet of fully cut up slip covers

SLIP COVERS

(sizes per growing perimeters and growing lining heights : table 1)

Plasturgist sizes	User sizes
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Product name	Delivery form	Width	Fold	Plasturgist length	Thick ness	Perimeter	Usable length	Usable width	Usable height for lining	Usable length for covering	Sales unit
	Boxes or Rolls or Pallets of transparent yellow covers			(mm)	(µm)			(mm)	(mm)	(mm)	

		(mm)	(mm)			(mm)	(mm)				
GARDAC HOUS 1743	Cover	280	100	340	100	960	280	200	90	240	B150 B750
<i>GARDAC HOUS 1832</i>	<i>Cover</i>	<i>310</i>	<i>100</i>	<i>335</i>	<i>100</i>	<i>1020</i>	<i>310</i>	<i>200</i>	<i>115</i>	<i>235</i>	<i>B150 B750</i>
GARDAC HOUS 1818	Cover	310	100	410	100	1020	310	200	190	310	B125 B625
GARDAC HOUS 1838	Cover	410	150	415	100	1420	410	300	95	265	B75 B375
GARDAC HOUS 1813	Cover	410	150	515	100	1420	410	300	195	365	B75 B375
GARDAC HOUS 1815	Cover	410	150	610	100	1420	410	300	290	460	B50 B250
GARDAC HOUS 1787	Cover	450	150	450	100	1500	450	300	130	300	B50 B250
<i>GARDAC HOUS 1839</i>	<i>Cover</i>	<i>610</i>	<i>200</i>	<i>615</i>	<i>100</i>	<i>2020</i>	<i>610</i>	<i>400</i>	<i>195</i>	<i>415</i>	<i>B40 B200</i>
GARDAC HOUS 1823	Cover	610	200	715	100	2020	610	400	295	515	B35 B175
GARDAC HOUS 1805	Cover	630	200	700	100	2060	630	400	250	500	B25 B125
GARDAC HOUS 1762	Cover	630	200	1000	100	2060	630	400	580	800	B25 B125
<i>GARDAC HOUS 1879</i>	<i>Cover</i>	<i>700</i>	<i>175</i>	<i>410</i>	<i>100</i>	<i>2100</i>	<i>700</i>	<i>350</i>	<i>35</i>	<i>235</i>	<i>B60 B300</i>
GARDAC HOUS 1721	Cover	770	255	1100	100	2560	770	510	570	845	B25 B125
<i>GARDAC HOUS 1881</i>	<i>Cover</i>	<i>1000</i>	<i>160</i>	<i>500</i>	<i>100</i>	<i>2640</i>	<i>1000</i>	<i>320</i>	<i>160</i>	<i>340</i>	<i>B40 B200</i>
<i>GARDAC HOUS 1796</i>	<i>Cover</i>	<i>750</i>	<i>300</i>	<i>970</i>	<i>100</i>	<i>2700</i>	<i>750</i>	<i>600</i>	<i>350</i>	<i>670</i>	<i>B20 B100</i>
<i>GARDAC HOUS 1840</i>	<i>Cover</i>	<i>780</i>	<i>300</i>	<i>1040</i>	<i>100</i>	<i>2760</i>	<i>780</i>	<i>600</i>	<i>420</i>	<i>740</i>	<i>R100</i>

Bold type : items on stock

Italic type : non guaranteed stock

SLIP COVERS

(sizes per growing perimeters and growing lining heights : table 2)

Plasturgist sizes	User sizes
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Product name	Delivery form Boxes or Rolls or Pallets of transparent yellow covers	Width (mm)	Fold (mm)	Plasturgist lenght (mm)	Thick ness (µm)	Perimeter (mm)	Usable lenght (mm)	Usable width (mm)	Usable height for lining (mm)	Usable lenght for covering (mm)	Sales unit
GARDAC HOUS 1766	Cover	700	350	1050	100	2800	700	700	330	700	B20 B100
GARDAC HOUS 1816	Cover	800	300	995	100	2800	800	600	370	695	B20 B100
GARDAC HOUS 1822	Cover	800	300	1050	100	2800	800	600	400	750	R100
<i>GARDAC HOUS 1942</i>	<i>Cover</i>	<i>750</i>	<i>325</i>	<i>1375</i>	<i>100</i>	<i>2800</i>	<i>750</i>	<i>650</i>	<i>710</i>	<i>1150</i>	<i>R100</i>
GARDAC HOUS 1749	Cover	750	325	1570	100	2800	750	650	900	1245	R50
GARDAC HOUS 1746	Cover	750	325	2000	100	2800	750	650	1330	1675	R50
<i>GARDAC HOUS 1883</i>	<i>Cover</i>	<i>1010</i>	<i>210</i>	<i>800</i>	<i>100</i>	<i>2860</i>	<i>1010</i>	<i>420</i>	<i>360</i>	<i>590</i>	<i>R100</i>
<i>GARDAC HOUS 1884</i>	<i>Cover</i>	<i>1010</i>	<i>210</i>	<i>1000</i>	<i>100</i>	<i>2860</i>	<i>1010</i>	<i>420</i>	<i>560</i>	<i>790</i>	<i>R100</i>
<i>GARDAC HOUS 1885</i>	<i>Cover</i>	<i>1200</i>	<i>175</i>	<i>650</i>	<i>100</i>	<i>3100</i>	<i>1200</i>	<i>350</i>	<i>250</i>	<i>475</i>	<i>R100</i>
<i>GARDAC HOUS 1886</i>	<i>Cover</i>	<i>1010</i>	<i>310</i>	<i>1100</i>	<i>100</i>	<i>3260</i>	<i>1010</i>	<i>620</i>	<i>430</i>	<i>790</i>	<i>R50</i>
GARDAC HOUS 1888	Cover	1010	310	1300	100	3260	1010	620	630	990	R50
GARDAC HOUS 1841	Cover	1170	238	1100	100	3292	1170	476	574	862	R50
GARDAC HOUS 1928	Cover	950	375	1250	100	3400	950	750	481	875	R100
<i>GARDAC HOUS 1889</i>	<i>Cover</i>	<i>1210</i>	<i>260</i>	<i>1000</i>	<i>100</i>	<i>3460</i>	<i>1210</i>	<i>520</i>	<i>430</i>	<i>740</i>	<i>R50</i>
GARDAC HOUS 1890	Cover	1210	260	1200	100	3460	1210	520	630	940	R50
GARDAC HOUS 1722	Cover	1070	385	1600	100	3680	1070	770	780	1215	R50
GARDAC HOUS 1814	Cover	1170	385	1500	100	3880	1170	770	711	1115	R50

Bold type : items on stock

Italic type : non guarantied stock

SLIP COVERS

(sizes per growing perimeters and growing lining heights : table 3)

Plasturgist sizes	User sizes
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Product name	Delivery form Boxes or Rolls or Pallets of transparent yellow covers	Width (mm)	Fold (mm)	Plasturgist length (mm)	Thick ness (μ m)	Perimeter (mm)	Usable length (mm)	Usable width (mm)	Usable height for lining (mm)	Usable length for covering (mm)	Sales unit
<i>GARDAC HOUS 1699</i>	<i>Cover</i>	1170	485	1200	100	4280	1170	970	210	715	R50
GARDAC HOUS 1726	Cover	1170	485	1400	100	4280	1170	970	380	915	R50
GARDAC HOUS 1777	Cover	1170	485	1600	100	4280	1170	970	580	1115	R50
GARDAC HOUS 1844	Cover	1170	485	1750	100	4280	1170	970	730	1265	R50
GARDAC HOUS 1719	Cover	1270	440	1600	100	4300	1270	880	670	1160	R50
GARDAC HOUS 1735	Cover	1270	440	2000	100	4300	1270	880	1070	1560	R50
<i>GARDAC HOUS 1891</i>	<i>Cover</i>	1270	455	1500	100	4360	1270	910	540	1045	R50
<i>GARDAC HOUS 1892</i>	<i>Cover</i>	1270	475	1700	100	4440	1270	950	700	1225	R50
GARDAC HOUS 1847	Cover	1170	535	1210	100	4480	1170	1070	90	675	R50
<i>GARDAC HOUS 1845</i>	<i>Cover</i>	1170	535	1720	100	4480	1170	1070	600	1185	R50
<i>GARDAC HOUS 1848</i>	<i>Cover</i>	1170	535	1870	100	4480	1170	1070	750	1335	R50
GARDAC HOUS 1720	Cover	1170	535	2000	100	4480	1170	1070	880	1465	R50
<i>GARDAC HOUS 1982</i>	<i>Cover</i>	1370	450	600	100	4540	1370	900	-	150	R150
GARDAC HOUS 1907	Cover	1370	450	1000	100	4540	1370	900	78	550	R50
<i>GARDAC HOUS 1695</i>	<i>Cover</i>	1370	450	1250	100	4540	1370	900	330	800	R50
GARDAC HOUS 1716	Cover	1370	450	1500	100	4540	1370	900	550	1050	R50
<i>GARDAC HOUS 1893</i>	<i>Cover</i>	1370	450	1900	100	4540	1370	900	950	1450	R50

Bold type : items on stock

Italic type : non guaranteed stock

SLIP COVERS

(sizes per growing perimeters and growing lining heights : table 4)

Plasturgist sizes	User sizes
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Product name	Delivery form Boxes or Rolls or Pallets of transparent yellow covers	Width (mm)	Fold (mm)	Plasturgist lenght (mm)	Thick ness (µm)	Perimeter (mm)	Usable lenght (mm)	Usable width (mm)	Usable height for lining (mm)	Usable lenght for covering (mm)	Sales unit
GARDAC HOUS 1764	Cover	1270	540	1400	100	4700	1270	1080	270	860	R50
GARDAC HOUS 1850	Cover	1270	540	1680	100	4700	1270	1080	550	1140	R50
GARDAC HOUS 1806	Cover	1270	540	2300	100	4700	1270	1080	1170	1760	R50
GARDAC HOUS 1715	Cover	1270	565	1700	100	4800	1270	1130	520	1135	R50
GARDAC HOUS 1817	Cover	1460	535	1150	100	5060	1460	1070	30	615	R50
GARDAC HOUS 1802	Cover	1460	535	1300	100	5060	1460	1070	203	765	R50
GARDAC HOUS 1724	Cover	1460	535	2250	100	5060	1460	1070	1130	1715	R50
GARDAC HOUS 1867	Cover	1480	565	2000	100	5220	1480	1130	820	1435	R50
GARDAC HOUS 1871	Cover	1480	565	2350	100	5220	1480	1130	1170	1785	R50
GARDAC HOUS 1730	Cover	1500	565	1700	100	5260	1500	1130	520	1135	R50
GARDAC HOUS 1811	Cover	1520	565	1400	75	5300	1520	1130	220	835	R50
GARDAC HOUS 1797	Cover	1520	565	1520	100	5300	1520	1130	340	955	R50
GARDAC HOUS 1873	Cover	1520	565	1920	100	5300	1520	1130	740	1355	R50
GARDAC HOUS 1900	Cover	1520	565	2150	100	5300	1520	1130	970	1585	R25
GARDAC HOUS 1910	Cover	1520	565	2500	75	5300	1520	1130	1342	1935	R50
GARDAC HOUS 1903	Cover	1520	565	3000	75	5300	1520	1130	1842	2435	R50

GARDAC HOUS 1729	Cover	1600	625	1515	100	5700	1600	1250	235	890	R50
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Bold type : items on stock

Italic type : non guaranteed stock

SLIP COVERS

(sizes per growing perimeters and growing lining heights : table 5)

Plasturgist sizes	User sizes
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Product name	Delivery form Boxes or Rolls or Pallets of transparent yellow covers	Width (mm)	Fold (mm)	Plasturgist lenght (mm)	Thick ness (µm)	Perimeter (mm)	Usable lenght (mm)	Usable width (mm)	Usable height for lining (mm)	Usable lenght for covering (mm)	Sales unit
GARDAC HOUS 1782	Cover	1700	575	2200	100	5700	1700	1150	1000	1625	R50
GARDAC HOUS 1874	Cover	1720	587.5	1300	100	5790	1720	1175	75	713	R50
GARDAC HOUS 1733	Cover	1720	587.5	1700	100	5790	1720	1175	475	1113	R50
GARDAC HOUS 1798	Cover	1720	587.5	1900	100	5790	1720	1175	675	1313	R50
GARDAC HOUS 1725	Cover	1800	600	1700	100	6000	1800	1200	450	1100	R50
GARDAC HOUS 1908	Cover	1800	600	2000	100	6000	1800	1200	770	1400	R50
GARDAC HOUS 1894	Cover	1800	600	2550	100	6000	1800	1200	1300	1950	R25
<i>GARDAC HOUS 1937</i>	<i>Cover</i>	<i>2200</i>	<i>750</i>	<i>2100</i>	200	<i>7400</i>	<i>2200</i>	<i>1500</i>	<i>563</i>	<i>1350</i>	<i>R20</i>
<i>GARDAC HOUS 1895</i>	<i>Cover</i>	<i>2200</i>	<i>750</i>	<i>2500</i>	<i>100</i>	<i>7400</i>	<i>2200</i>	<i>1500</i>	<i>950</i>	<i>1750</i>	<i>R20</i>
<i>GARDAC HOUS 1899</i>	<i>Cover</i>	<i>2200</i>	<i>750</i>	<i>2900</i>	<i>100</i>	<i>7400</i>	<i>2200</i>	<i>1500</i>	<i>1350</i>	<i>2150</i>	<i>R20</i>
<i>GARDAC HOUS 1975</i>	<i>Cover</i>	<i>2360</i>	<i>830</i>	<i>1750</i>	<i>100</i>	<i>8040</i>	<i>2350</i>	<i>1670</i>	<i>50</i>	<i>920</i>	<i>R25</i>
GARDAC HOUS 1765	Cover	2350	835	2525	100	8040	2350	1670	805	1690	R25

GARDAC HOUS 1769	Cover	2370	835	2535	100	8080	2370	1670	815	1700	R25
GARDAC HOUS 1876	Cover	2350	900	1415	100	8300	2350	1800	-	515	R25
<i>GARDAC HOUS 1878</i>	<i>Cover</i>	<i>2580</i>	<i>920</i>	<i>1380</i>	<i>100</i>	<i>8840</i>	<i>2580</i>	<i>1840</i>	-	<i>460</i>	<i>R25</i>
GARDAC HOUS 1763	English cover	5850	800	1000	75	11700	4250	1600	-	1000	P250

Bold type : items on stock

Italic type : non guaranteed stock

VCI PLATES

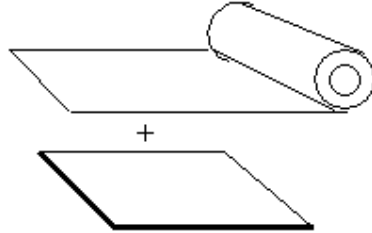


Product name	Delivery form	Length (mm)	Width (mm)	Thickness (mm)	Sales unit
GARDAC PLAQ 1857	yellow honeycomb sheet 800 g/m2	495	345	3,5	pallet of 1530 sheets pack of 100 sheets
GARDAC PLAQ 1856	yellow honeycomb sheet 800 g/m2	690	495	3,5	pallet of 765 sheets pack of 100 sheets
<i>GARDAC PLAQ 1859</i>	<i>yellow solid sheet 4600 g/m2</i>	<i>1200</i>	<i>1000</i>	<i>5,0</i>	<i>pallet of 115 sheets pack of 10 sheets</i>

Bold type : items on stock

Italic type : non guaranteed stock

VCI SKIN PACK KITS



FORMATS 350 x 500

Product name	Delivery form	Width (mm)	Length (m)	Thickness	Sales unit
GARDAC FILM 1783	reel of transparent yellow film	400	270	200 microns	reel of 20 kg
GARDAC PLAQ 1862	yellow honeycomb sheet 800 g/m2 microperforated and prepared for wrapping	345	495	3.5 mm	pallet of 1530 sheets pack of 100 sheets

FORMATS 500 x 700

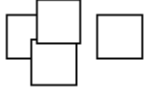
Product name	Delivery form	Width (mm)	Length (m)	Thickness	Sales unit
GARDAC FILM 1712	reel of transparent yellow film	550 mm	198 m	200 microns	reel of 20 kg
GARDAC PLAQ 1863	yellow honeycomb sheet 800 g/m2 microperforated and prepared for wrapping	495 mm	690 mm	3.5 mm	pallet of 765 sheets pack of 100 sheets

Bold type : items on stock

Italic type : non guaranteed stock

The skin-pack of a part between a rigid VCI polypropylene plate and a flexible VCI polyethylene film is patented by Henkel

VCI SQUARE DIFFUSERS



Product name	Delivery form	Width (mm)	Length(m m)	Thickness (mm)	Protected volume (litres)	Bag of x squares
GARDAC TABS 1812	yellow squares	12	12	1	2	1000
GARDAC TABS 1825	yellow squares	25	25	1	10	1000

Bold type : items on stock

Italic type : non guaranteed stock

GARDAC TABS 1825 is **PSA-approved** under no. HFC 03815

VCI TUBING



Product name	Delivery form	Diameter (mm)	Length (m)	Sales unit
GARDAC TUBE 1865	yellow tubing	6	305	reel of 305 m

Bold type : items on stock

Italic type : non guaranteed stock

VCI NETS



Product name	Delivery form	Diameter (mm)	Length (m)	Sales unit
GARDAC MESH 1870	yellow tubular net	For parts of 25 to 50 mm	200	drum of 200 m

Bold type : items on stock

Italic type : non guaranteed stock

STORAGE PRECAUTIONS TO BE TAKEN BY USERS OF GARDAC VCI PRODUCTS

We have applied all our expertise in making our Volatile Corrosion Inhibitors as efficient as possible.

To ensure that you derive maximum benefit from their anticorrosive properties, we recommend that you take the following precautions when storing our products.

1) Avoid all chemical contamination

Make sure that GARDAC VCIs never come into contact with classic industrial products such as chlorinated solvents and lubricants, freons, fireproofing products/flame retardants, extinguishing powders, organic and mineral acids, etc., nor with their dusts or combustion gases.

2) Avoid all contact with dirt particles

GARDAC VCIs must be protected individually while waiting to be used. They must never be allowed to come into direct contact with the dusts naturally present in storage bays or manufacturing workshops. Take care not to pierce the packaging of individual GARDAC VCIs while they are being handled. Any soiled GARDAC VCI articles must be discarded immediately.

3) Avoid excessively high or low temperatures

The temperature of GARDAC VCI products in the storage bay must at all times remain within the range of -10 to +40°C.

4) **Avoid excessive humidity**

Stored GARDAC VCIs must never come into contact with liquid water (rain, flooding, condensation).

5) **Avoid quality impairment due to partial use**

If only part of a GARDAC VCI product is used, the rest of the material must be repacked and sealed as soon as possible to comply with the above mentioned specifications.

GARDAC VCIs

VOLATILE CORROSION INHIBITORS

I. DESIGN

GARDAC VCIs are packaging materials composed of a polyolefin base with an integrated anticorrosive active ingredient. This active ingredient is capable of progressively emitting corrosion inhibiting vapours.

Parts made of cast iron, steel, coated steel, aluminium and copper alloys that are enclosed in **GARDAC VCI** packages are protected from corrosion by the vapours that gradually emerging from the polymer.

These vapours are non-toxic, non-polluting, and the treated polymer remains entirely recyclable.

II. APPROVALS

◇ **RENAULT**: approval number 94240/AC

◇ **PSA**: approval number HSP C4010

◇ **GM**: approved and used

- ◇ **FORD**: approved and used

- ◇ **BMW** : used

- ◇ **EDF**: Acceptance: **GARDAC no. PMUC 05077. GARDAC 1000** products comply with the specification **EDF UTO CSCT/43/2618 Index 4.**

- ◇ **MILITARY**: **GARDAC 1000** products comply with the **US military standards** MIL-B-22019C and MIL-B-22020D. They also comply with the **French military standard** 'PRODUIT P 18' of GAM-EMB 3 issued by CIN-CE in 1995.

.../...

III. APPLICATION

This type of VCI packaging offers a technically, practically and financially interesting alternative to oil or desiccant anticorrosive methods.

IV. ADVANTAGES

Process advantages:

Simplifies the parts packaging station.

Eliminates the need for a pretreatment station before use or painting of parts.

Commercial advantages:

Makes the part manufacturing process shorter, simpler and more presentable.

Enhances product appearance (dry, uncorroded parts). What's more, parts no longer need cleaning before inspection and use.

Enhanced quality of protection:

As long as **GARDAC VCI** packages remain closed they will provide absolute protection of metallic parts by direct contact and by the vapours produced.

Cleanliness, health and safety advantages:

The active ingredients in **GARDAC VCIs** pose no hazard to personnel (no molybdates) nor to the environment (no heavy metals). See health and safety data sheet.

Environmental advantage:

GARDAC VCIs are mostly made of one single material and have been designed for recycling and/or recovery through the usual channels for standard polyolefin articles.

.../...

V. USE

The parts to be protected must not have come into contact with chlorinated compounds at any time during their manufacture.

- undiluted lubricants < 100 ppm of chlorine by weight
- organic degreasing agents < 100 ppm of chlorine by weight
- aqueous liquids of any kind < 250 ppm of Cl- by weight
- fingerprints: none

Enclose the parts to be protected either singly or in bulk in suitable **GARDAC VCI** packaging and seal this packaging as tightly as possible (by careful folding, stapling, heat sealing, etc.).

There is no need to extract all the air from the package. However, bad sealing or piercing will seriously diminish the anti-corrosive efficacy of the package.

The packaged parts must be directly accessible to the vapours emitted by the sack walls. Any inactive film lying between the packaging material and the parts will prevent the active vapours from becoming fully effective. If the package contains interlays in contact with the parts, please do not forget to use **GARDAC VCI** interlays (please consult us).

Always calculate **0.6 m²** of active **GARDAC VCI** surface for every **1 m²** of metallic surface requiring protection. Each point of any part within the package must be located at less than **50 cm** from an active surface.

VI. UNPACKING THE PARTS

Open the package. In a few minutes the active ingredient that had settled on the surface of the parts will evaporate leaving the metal in the same condition as before packaging. You can then weld, paint or assemble these parts without further ado.

We recommend that you unpack pieces only as and when you need them. Any part that has been removed from its protective packaging in advance and left without any further protection will again be susceptible to the corrosive power of its surroundings.

SAFETY DATA SHEET

1 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE MANUFACTURER/SUPPLIER

Preparation:

Generic name: **GARDAC Series 1000**

Manufacturer/Supplier:

Name: HENKEL SURFACE TECHNOLOGIES

Address: 82 Avenue du 85 de ligne, 58200 COSNE SUR LOIRE, FRANCE

Phone: 03.86.28.70.00 Fax: 03.86.28.12.37 Telex:

Emergency phone no.:03.86.28.70.00

Company/Organisation: I.N.R.S.: 01.45.42.59.59

Intended use:

Solvent-free anticorrosive product.

Refer to technical data sheet.

2 - COMPOSITION/INFORMATION ON COMPONENTS

Representative dangerous substances:

(present in a preparation in a concentration sufficient to be considered as having the toxicological properties it would have had in the pure state at 100%)

This preparation does not contain any dangerous substance of this category.

Other dangerous substances:

The product does not contain any substance of this category.

Substances present in a concentration below the minimum hazard threshold:

007-010-00-4 Cas 7632-00-0 SODIUM NITRITE Concentration $\geq 0.00\%$ and $< 2.50\%$ Symbol: T 0 R :8-25

Other substances with maximum workplace exposure limits:

No substance of this category is present.

3 - HAZARD IDENTIFICATION

This preparation is not classed as hazardous to health under directive 88/379/EEC and 93/18/EEC.

This product is not classed as flammable. Refer to the recommendations concerning other products present on the premises.

4 - FIRST AID MEASURES

If in doubt or if symptoms persist, always consult a doctor.

NEVER attempt to make an unconscious person swallow anything.

5 - FIREFIGHTING MEASURES

N/A

In case of fire, the recommended extinguishing media are:

Powders, CO₂, alcohol-resistant foams, water spray, sand.

Special protective equipment for firefighters:

Due to the toxicity of the gases emitted during thermal decomposition of the products, firefighters should be equipped with personal and self-contained protective breathing apparatus.

6 - SPILLAGE, ACCIDENTAL RELEASE

Personal precautions:

Refer to protection measures listed under headings 7 and 8.

Environmental precautions:

Collect wastes in containers for disposal according to the regulations in force (see section 13).

7 - HANDLING AND STORAGE

The regulations relating to storage facilities are also applicable to workshops where the product is being handled.

Handling:

Reclose any opened packages and store them in a dry place.

Handle and use only in well ventilated areas.

Prohibited equipment and procedures:

Do not smoke, eat or drink in the areas where this preparation is being used.

Storage:

Storage temperature: maximum +40°C - minimum -10°C

Store in the original packages/containers in a dark, dry place.

8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures:

Personnel must always wear working clothes that are regularly washed.

Ensure adequate ventilation, if possible by extraction at the work stations.

Exposure limits to INRS ND 1945-153-93/(1996) and ND 2022-163-96:

No substance of this category known.

Hand protection:

9 - PHYSICAL PROPERTIES

Volumetric mass:	<1
Acid-base characteristics of the preparation:	N/A
Water solubility of the preparation:	insoluble
Vapour pressure at 50°C of volatile components:	N/A
Physical state:	solids in blocks
PE range:	N/A
pH measurement impossible or pH value is:	N/A
Auto-ignition temperature:	not specified
Decomposition temperature:	not specified
Melting point range:	> 100°C.
Average distillation temperature of solvents contained:	not specified

Other data:

Colour: yellow

Specific mass: 950 +/- 20.

Articles made of polyolefin

10 - STABILITY AND REACTIVITY

The preparation is stable in the handling and storage conditions recommended under heading 7 of the SDS

Conditions to be avoided:

None known under normal conditions of use.

Do not formulate with amines.

Materials to be avoided:

Avoid direct contact with amines.

Dangerous decomposition products:

Formation of dangerous gases: NO_x, nitrogen, etc.

11 - TOXICOLOGICAL INFORMATION

The preparation contains sodium nitrite in a concentration <1%. When inhaled, the product may cause circulatory problems in certain persons.

However, the sodium nitrite contained in the product is stabilised in a polymer matrix.

LC50 rat by inhalation: 5.5 mg/m³ of air at 20°C over 4 hours.

Sodium nitrite is present in many foods (sausage meats, salted goods) as a preservative in variable quantities as specified under code E250.

PDD (permissible daily dose) by ingestion: 0.1 mg of sodium nitrite per kg body weight of consumer.

12 - ECOLOGICAL INFORMATION

No ecological data available for the preparation itself.

Mobility:

No data available

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Aquatic toxicity:

No data available

Other information:

In elevated doses, effects on aquatic organisms and on seed germination.

13 - DISPOSAL CONSIDERATIONS

Do not empty into drains or watercourses.

Disposal possible in compliance with local authority regulations.

14 - TRANSPORT INFORMATION

Exempt from transport classification and labelling requirements.

15 - REGULATORY INFORMATION

This preparation has been classified in conformity with the directive "All Preparations" 88/379/EEC and its amendments.

Also considered was the directive 97/69/EC as 23^d amendment to the directive 67/548/EC (Dangerous substances).

Specific regulations:

NATIONAL REGULATIONS

French social security code: Occupational diseases, Article L495 to 501 and L461-1 to 8.

Headings: 601 - 612.

French labour code.

Occupational health and safety

Art. R232-1 to 14 (ventilation, exhaust extraction, decontamination) as relevant.

Environmental protection: French Waste Management Law no. 75-633 of 15/07/75 amended: Decree no. 77-974 of 19/08/77: Ordinance of 04/01/85 concerning the control of disposal routes: Law no. 92-642 of 13/07/92: Decree no. 94-609 of 13/07/94: Decree no. 97-517 of 15/05/97: Notice of 11/11/97 concerning the nomenclature of wastes: Decree no. 98-679 of 30/07/98.

16 - OTHER INFORMATION

As the working conditions of the user are not known to us, the information given in this safety data sheet is based on our knowledge of national and Community regulations.

The product must not be used for purposes other than those specified under heading 1 without previously having obtained written handling instructions.

The onus is always on the user to take all measures necessary to ensure compliance with the requirements of local laws and regulations.

The information given in this sheet is to be considered as a description of the safety requirements relating to our product and not as a warranty of the product's properties.

The preparation contains very small amounts (<0.3%) of poorly reactive and sterically blocked amino compounds.

Author: HL. Trinquier

AUTOMOTIVES STANDARDS (table 1)

ODETTE STANDARDS

presentation	use	Henkel item		
<i>Odette 4 litres</i>	<i>Lining use</i>	<i>GARDAC HOUS 1832</i>		<i>C150 C750</i>
Odette 9 litres	Lining use	GARDAC HOUS 1838		C75 C375
Odette 18 litres	Lining use	GARDAC HOUS 1813		C75 C375
<i>Odette 39 litres</i>	<i>Lining use</i>	<i>GARDAC HOUS 1839</i>		<i>C40 C200</i>
Odette 59 litres	Lining use	GARDAC HOUS 1823		C35 C175

GALIA STANDARDS

presentation	use	Henkel item
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Galia A 03	Lining use	GARDAC HOUS 1890		R50
<i>Galia A 04</i>	<i>Lining use</i>	<i>GARDAC HOUS 1889</i>		<i>R50</i>
Galia A 05	Lining use	GARDAC HOUS 1888		R50
<i>Galia A 06</i>	<i>Lining use</i>	<i>GARDAC HOUS 1886</i>		<i>R50</i>
<i>Galia A 07</i>	<i>Lining use</i>	<i>GARDAC HOUS 1884</i>		<i>R100</i>
<i>Galia A 08</i>	<i>Lining use</i>	<i>GARDAC HOUS 1883</i>		<i>R100</i>
Galia A 09	Lining use	GARDAC HOUS 1823		C35 C175
Galia A 10	Lining use	GARDAC HOUS 1823		C35 C175
<i>Galia A 11</i>	<i>Lining use</i>	<i>GARDAC HOUS 1839</i>		<i>C40 C200</i>
Galia A 12	Lining use	GARDAC HOUS 1815		C50 C250
Galia A 13	Lining use	GARDAC HOUS 1813		C75 C375
Galia A 14	Lining use	GARDAC HOUS 1813		C75 C375
Galia A 15	Lining use	GARDAC HOUS 1818		C125 C625
<i>Galia A 16</i>	<i>Lining use</i>	<i>GARDAC HOUS 1832</i>		<i>C150 C750</i>
<i>Galia C 40</i>	<i>Lining use</i>	<i>GARDAC HOUS 1832</i>		<i>C150 C750</i>

AUTOMOTIVES STANDARDS (table 2)

RENAULT

presentation	use	Henkel item	MABEC code	
CAR-S-0234	Lining use	GARDAC HOUS 1873		R50
CAR-S-2469	Lining use	GARDAC HOUS 1873		R50
CAR-S-2470	Garnissage	GARDAC HOUS 1908	R 100 249 157	R50
<i>CON-S-0130</i>	<i>Lining use</i>	<i>GARDAC HOUS 1840</i>		<i>C20 C100</i>
<i>ECA-0800</i>	<i>Lining use</i>	<i>GARDAC HOUS 1867</i>		<i>R50</i>
ECA-1900	Lining use	GARDAC HOUS 1894		R25
<i>ETM-0600</i>	<i>Lining use</i>	<i>GARDAC HOUS 1845</i>		<i>R50</i>
ETM-1000	Lining use	GARDAC HOUS 1730	R 100 249 253	R50
ETM-1400	Lining use	GARDAC HOUS 1871		R50
<i>ETM-1500</i>	<i>Lining use</i>	<i>GARDAC HOUS 1895</i>		<i>R20</i>
ETM-1700	Lining use	GARDAC HOUS 1894		R25
<i>ETM-2500</i>	<i>Lining use</i>	<i>GARDAC HOUS 1899</i>		<i>R20</i>
ETM-4434	Lining use	GARDAC HOUS 1850		R50
KIT A0	Lining use	GARDAC HOUS 1844		R50
KIT B0	Lining use	GARDAC HOUS 1777	R 100 249 255	R50
KIT C0	Lining use	GARDAC HOUS 1841		R50
KIT C1	Lining use	GARDAC HOUS 1841		R50
KIT E1	Lining use	GARDAC HOUS 1798		R50

KIT E3	Lining use	GARDAC HOUS 1782		R50
MFM-6127	Lining use	GARDAC HOUS 1847		R50
MFM-6134	Lining use	GARDAC HOUS 1725	R 100 249 155	R50
MFM-6390	Lining use	GARDAC HOUS 1876		R25
<i>MFM-6906</i>	<i>Lining use</i>	<i>GARDAC HOUS 1878</i>		<i>R25</i>
<i>SLI-0012</i>	<i>Lining use</i>	<i>GARDAC HOUS 1892</i>		<i>R50</i>
<i>SLI-0120</i>	<i>Lining use</i>	<i>GARDAC HOUS 1840</i>		<i>C20 C100</i>
<i>SLI-0760</i>	<i>Lining use</i>	<i>GARDAC HOUS 1848</i>		<i>R50</i>
SLI-1200	Lining use	GARDAC HOUS 1782		R50
	Lining use	GARDAC HOUS 1719	R 100 249 138	R50
	Interlayer	GARDAC FILM 1799	R 100 249 225	R 658 ml
	Interlayer	GARDAC FILM 1909	R 100 249 226	R 983 ml
	Sleeve	GARDAC GAIN 1772	R 100 249 399	R 540 ml

AUTOMOTIVES STANDARDS (table 3)

PSA STANDARDS

presentation	use	Henkel item		
<i>CB 01</i>	<i>Cover use</i>	<i>GARDAC HOUS 1764</i>		<i>R50</i>
CB 01	Liner use	GARDAC HOUS 1850		R50
CH 33	Cover use	GARDAC HOUS 1726		R50
CH 33	Liner use	GARDAC HOUS 1844		R50
CV 33	Cover use	GARDAC HOUS 1726		R50
CV 33	Liner use	GARDAC HOUS 1844		R50
<i>CH 34</i>	<i>Cover use</i>	<i>GARDAC HOUS 1972</i>		<i>R100</i>
CH 34	Liner use	GARDAC HOUS 1777		R50
<i>CV 34</i>	<i>Cover use</i>	<i>GARDAC HOUS 1972</i>		<i>R100</i>
CV 34	Liner use	GARDAC HOUS 1777		R50
CH 52	Cover use	GARDAC HOUS 1798		R50
CH 52	Liner use	GARDAC HOUS 1782		R50
CV 52	Cover use	GARDAC HOUS 1798		R50
CV 52	Liner use	GARDAC HOUS 1782		R50
CH 53	Cover use	GARDAC HOUS 1729		R50

CH 53	Liner use	GARDAC HOUS 1798		R50
CV 53	Cover use	GARDAC HOUS 1729		R50
CV 53	Liner use	GARDAC HOUS 1798		R50
<i>CV 62</i>	<i>Cover use</i>	<i>GARDAC HOUS 1958</i>		<i>R35</i>
<i>CV 62</i>	<i>Liner use</i>	<i>GARDAC HOUS 1951</i>		<i>R35</i>
CV 71	Cover use	GARDAC HOUS 1765		R25
<i>CV 71</i>	<i>Liner use</i>	<i>GARDAC HOUS 1953</i>		<i>R15</i>
<i>CV 72</i>	<i>Cover use</i>	<i>GARDAC HOUS 1959</i>		<i>R20</i>
<i>CV 72</i>	<i>Liner use</i>	<i>GARDAC HOUS 1952</i>		<i>R20</i>
<i>CH 73</i>	<i>Cover use</i>	<i>GARDAC HOUS 1975</i>		<i>R25</i>
CH 73	Liner use	GARDAC HOUS 1765		R25
<i>CV 73</i>	<i>Cover use</i>	<i>GARDAC HOUS 1975</i>		<i>R25</i>
CV 73	Liner use	GARDAC HOUS 1765		R25
<i>CV 81</i>	<i>Cover use</i>	<i>GARDAC HOUS 1968</i>		<i>R20</i>
<i>CV 81</i>	<i>Liner use</i>	<i>GARDAC HOUS 1957</i>		<i>R15</i>
<i>CV 82</i>	<i>Cover use</i>	<i>GARDAC HOUS 1961</i>		<i>R20</i>
<i>CV 82</i>	<i>Liner use</i>	<i>GARDAC HOUS 1954</i>		<i>R15</i>
<i>CV 83</i>	<i>Cover use</i>	<i>GARDAC HOUS 1960</i>		<i>R25</i>
<i>CV 83</i>	<i>Liner use</i>	<i>GARDAC HOUS 1954</i>		<i>R15</i>
<i>CH 93</i>	<i>Cover use</i>	<i>GARDAC HOUS 1970</i>		<i>R20</i>
<i>CH 93</i>	<i>Liner use</i>	<i>GARDAC HOUS 1980</i>		<i>R10</i>

AUTOMOTIVES STANDARDS (table 4)

GM STANDARDS

	use	Henkel item		presentation
GM 5131	Lining use	GARDAC HOUS 1724		

FORD STANDARDS

	use	Henkel item		presentation
13471	Lining use	GARDAC HOUS 1722		R50
<i>34000 + 34027</i>		<i>GARDAC DOSS 1788</i>		<i>R 126 ml</i>
<i>34019 + 34058</i>		<i>GARDAC SACH 1925</i>		<i>C 1250</i>

DAIMLER CHRYSLER STANDARDS

	use	Henkel item		presentation
B400131008		GARDAC SACH 1836		C 5000
<i>B400131028</i>		<i>GARDAC SACH 1751</i>		<i>C 1000</i>
B400131030		GARDAC SACH 1747		C 1500
B400131032		GARDAC SACH 1709		C 500
B400131052		GARDAC SACH 1833		C 2500