

DEAR COLLEAGUES in ASIA,

SHARE :o)

ITOCHU PLASTICS INC. TOKYO JAPAN

MOTOFUMI ETO / 江藤 基史

SHISHIO OKA / 岡 志史雄

12.12,2008

CORTEC

CORROSION CONFERNECE & EXPO



New Orleans, LA

March 16-20, 2008



GREEN CORTEC

TOTAL CORROSION CONTROL

CORTEC
*was only VCI company,
of over 350 exhibitors
at the NACE EXPO*



*Our VpCI products
are used in*

*more than **70** countries*

NACE and JACC



National Association of Corrosion Engineers

● 《米》防食技術協会

NACE International is the leader in the corrosion engineering and science community, and is recognized around the world as the premier authority for corrosion control solutions.

Japan Association of Corrosion Control



*Was certified as
**CORROSION
CONTROL
ENGINEER***



*made presentation
at JACC
Technology Assembly
on July 10th*

Earth/Environment-friendly Vapor-phase Corrosion Inhibitors

CORTEC Corporation Boris Miksic
Itochu Plastics Inc. Shishio Oka

1. Introduction

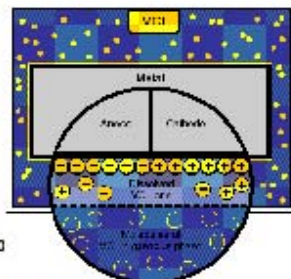
Volatile corrosion inhibitors were born in 1951. Compared with the situation in the U.S. and Europe, its proliferation in Japan is just at the initiation step. CORTEC's vapor-phase corrosion inhibitors, which were born in the U.S., the birthplace of the volatile corrosion inhibitor products, have been used in more than 70 countries. In particular, use of vapor-phase corrosion inhibiting films is remarkably growing every year. With a motto of "Total Corrosion Control," CORTEC offers secure and earth/environment-friendly vapor-phase corrosion inhibitors, VpCIs, and always keeps in mind a product making which gives the safety net to the products and properties of customers.

2. Outline of the Vapor-phase Corrosion Inhibitors: VpCIs

VpCIs provide a corrosion protection function based on the adsorption of vapor-phase corrosion inhibiting films onto multi-metal surfaces (including recessed areas and cavities) in an enclosed atmosphere. The corrosion inhibitors, which can be applied to many kinds of metals, perform the function mainly by vapor-phase corrosion inhibiting, and partly by contact corrosion inhibiting. VpCIs are also effective for cavities in an object with a complicated shape, where oil or paint for corrosion prevention can hardly reach. This method is safe, allowing cost effective, easy application, use and disposal, as well as offering clean, dry, and effective protection.

3. Factors Affecting the Corrosion Inhibiting Ability of VpCIs

- Vapor Pressure: pressure exerted when solid/liquid is in equilibrium with its own vapor molecules. Every chemical is different, affects the quantity of chemical required to saturate an enclosure.
- Diffusion: travel of vapor from high concentration to low concentration in a space, which brings about concentration equilibrium. VpCI molecules get into recessed areas, too, and the same concentration and saturated state are kept in them. (Transition toward the concentration homogenization is governed by Fick's law)
- Evaporation/Sublimation Ratio: determines how quickly molecules are released.
- VpCI chemical composition: VpCI molecules are "polar," and are attracted to all over the metal surfaces.



4. Features of CORTEC's Vapor-phase Corrosion Inhibitors

Exceptional corrosion inhibiting ability

Multi-metal corrosion prevention: applicable to various kinds of metals

The main component is amine-series carboxylate, offering a superior level of safety.

VpCI-126 BLUE conforms to PRTR Law and RoHS Directive, and will conform to REACH Regulation.

5. Test Methods on the Vapor-phase Corrosion Inhibiting Ability

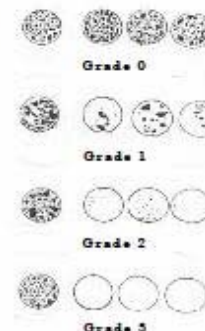
The followings are CORTEC's general corrosion inhibiting ability tests. The underlined tests are done on a routine basis.

- VIA TEST
- RAZOR BRADE TEST
- SO₂ TEST
- F-12/WET CYCLE TEST
- VIA TEST (Vapor

Inhibiting/Inhibitor Ability Test) in SALT SPRAY is a corrosion inhibiting test method specified in JIS, MIL-STD-3010A, Test Method 4031, and FED Test Method-STD-101.

Picture (below): VIA TEST

Illustration (right): grade standard



6. Exceptional Corrosion Inhibiting Ability

VIA TEST results for steel and copper

(Comparison between the CORTEC's product and competitors' five products n:3)

Materials	Test results		Time
	Steel	Copper	
VpCI-126 BLUE	Grade 3	Grade 3	20 Hrs
Competitors' VCI films (five products)	Grade2 > A < Grade3 (four) Grade 0 (one)	Grade 2 (two) Discoloration (three)	20 Hrs
No Inhibitor used	Rusting	Discoloration	20 Hrs

Test: conducted in 2008 by Japan Association of Corrosion Control (No.09-001)

Steel: Rusting > Grade 0 > Grade 1 > Grade 2 > Grade 3 (inf. >>> sup.)

Copper: Discoloration > Grade 0 > Grade 1 > Grade 2 > Grade 3 (inf. >>> sup.)

In other evaluation method of VIA TEST (JIS Z 1535-1994: VCI paper), VpCI-126 BLUE also received a rating of "no rusting (steel) / no discoloration (copper)." NACE (National Association of Corrosion Engineers) has adopted VIA TEST as the standard test method to evaluate the vapor-phase corrosion inhibiting ability to temporary protect steel surface. (NACE Standard TM0208-2008, Item No.21253)

7. VpCI Benefits

- Highly Safe and reliable rust (corrosion) prevention with VpCI packaging
- Over-packaging elimination and cost-reduction with thinner films
- Reduced labor and oil for corrosion protection with VpCI
- Long lasting corrosion protection for five years by combination of a VpCI film and an insert-type emitter.
- Reduced labor with VpCI films, adopting barrier packaging and alternative packaging composed of vacuum suction and nitrogen gas substitution
- Earth-friendly corrosion inhibiting packaging with biodegradable VpCI films
- Liquid VpCI products (water-soluble, plant-derived) also available
- Reduced interior film packaging with CorrTainer, a VpCI coated carton box

Customers' demands will be satisfied by VpCIs, CORTEC's earth/environment-friendly vapor-phase corrosion inhibitors.

地球と環境に優しい気化性防錆剤

コーテックコーポレーション ポリス ミクシク
伊藤忠プラスチック(株) 岡 志史雄

1. はじめに

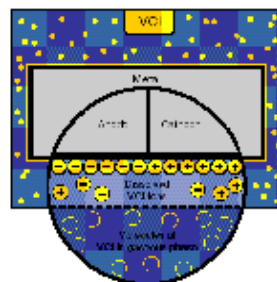
気化性防錆剤が生まれたのは 1951 年、日本での普及は欧米の状況を鑑みると、新たなスタートの位置についたばかりといえます。気化性防錆製品発祥の地アメリカで生まれたコーテックの気化性防錆剤は既に世界70カ国以上で使われており 中でも気化性防錆フィルムの使用量は毎年大きく成長を続けています。コーテックは“トータル コロージョン コントロール”を合言葉に、安心・安全で地球と環境にも優しい気化・気相防錆製品:VpCI を提供し、お客様の製品・財産を守る製品作りを心掛けております。

2. 気化性防錆剤:VpCI の概要

VpCI は同一閉鎖密閉雰囲気にある様々な金属の表面(陥没部や空洞を含め)に気化防錆膜を吸着させ、保護機能を持たせる方法です。多種金属に適用できる腐食抑制剤は気相防錆を主たる機能とし接触防錆機能を配合し防錆します。対象物の形状が複雑で防錆油・塗料などが届かない空隙部に対しても有効で、使用が安全で容易、しかも除去が簡単で、費用効率も良く、クリーン・ドライで、廃棄も容易で有効な防錆方法です。

3. VpCI の防錆性能に影響する要素

- 気化圧(Vapor Pressure): 気化圧は液体・固体がその固有の気化性分子と平衡を保っている状態で発揮されます。そして各化学物質により 限定空間を飽和状態にする量に違いがあります。
- 拡散(Diffusion): 同一空間内の濃度の高い所から低い所へ拡散し濃度の平衡を保つ動き。言い換えれば、凹んだ空間にも VpCI 分子が行き渡り飽和しながら濃度を同一にする動き。(フィックの法則: 濃度の均一化運動)
- 蒸発・昇華率(Evaporation/Sublimation Ratio): 気化分子が如何に早く浸透するか。
- VpCI 化学物質(Chemical composition): VpCI 製品は“極性”を持ち、金属の表面にくまなく吸着します。



4. コーテックの気化性防錆剤:VpCI の特徴

抜群の防錆性能

多種金属防錆・・・様々な金属に応用可能

主成分は安全性に優れるアミン系カルボン酸塩

VpCI-126 ブルーは PRTR 法・RoHS 指令対応、REACH 規制対応予定。

5. 気化性防錆性能の試験方法

以下はコーテックで行う一般的防錆性能試験であり、下線で示された試験方法が日常的に行われています。

・VIA TEST

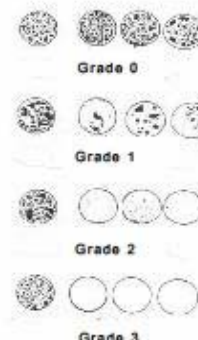
・RASOR BRAD TEST

・SO₂ TEST

・F-12/塩潤サイクル試験

・SALT SPRAY/塩水噴霧

写真(下) VIA TEST、図(右)Grade 基準



中でもVIA TEST (Vapor Inhibiting/Inhibitor Ability Test)は、JIS, MIL -STD-3010A, Test Method 4031¹⁾, 及び FED Test Method-STD-101 に既定された防錆性能の試験方法です。

6. 抜群の防錆性能

VIA TEST 鉄と銅での結果 (他社5品種とコーテック製品の比較 n:3)

資料	判定		時間
	銅	鉄	
VpCI-126 BLUE	Grade 3	Grade 3	20 Hrs
他社 VCI FILM(5 品種)	Grade2> A <Grade3 (4 品種) Grade 0 (1 品種)	Grade 2 (2 品種) 変色 (3 品種)	20 Hrs
ブランク	発錆	変色	20 Hrs

試験: 平成20年 (社)日本防錆技術協会 防錆技協 第09-001号

銅: 発錆 > Grade 0 > Grade 1 > Grade 2 > Grade 3 (劣>>>優)

銅: 変色 > Grade 0 > Grade 1 > Grade 2 > Grade 3 (劣>>>優)

また VIA TEST の別の評価方法: JIS Z 1535¹⁹⁹⁴ (気化性さび止め紙)でも VpCI-126BLUE・ブルーは“銅:発錆なし・銅:変色なし”の評価をいただきました。

2008 年 NACE(米国防錆技術協会)は、鉄鋼表面を一時的に保護する気化性防錆剤の性能を評価する試験方法として、VIA TEST を標準試験方法に採用しました。

(NACE Standard TM0208-2008, Item No.21253)

7. VpCI だけからできること

錆び(腐食)の防止を安全性・確実性の高い VpCI 防錆梱包で。

過剰包装とコストの削減をフィルムの薄肉化で。

防錆油の使用量と工数の削減を VpCI で。

長期5年間の防錆効果を VpCI 防錆フィルムと挿入型エミッターなどの組み合わせで。

バリア包装+真空吸引・窒素ガス置換の代替梱包による工数削減を VpCI フィルムで。

地球に優しい防錆梱包を生分解性 VpCI フィルムで。

また 水溶性・植物由来の液状 VpCI 製品も。

内装フィルム包装の削減を VpCI 塗布カートンボックス CorrTainer で。

お客様の御要望を コーテックの地球と環境に優しい気化性防錆剤 VpCI は実現します。

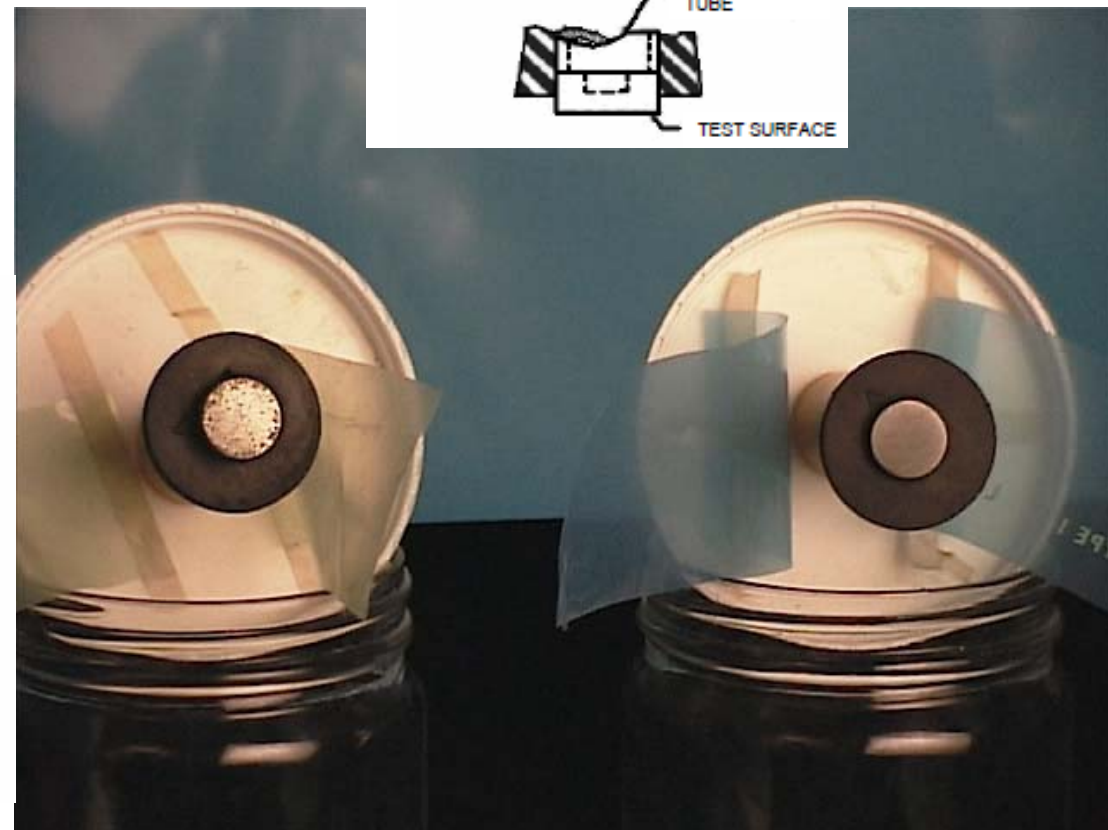
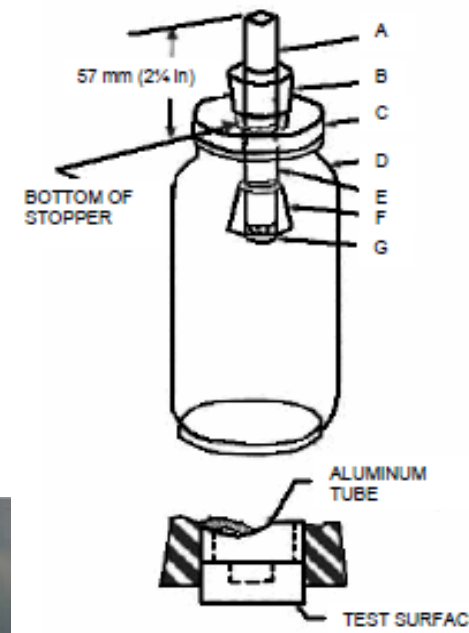
■ TEST METHODS

▪ VIA TEST

Fed. Std. 101C, JIS Z 1535

VIA Test Grades (Grade 2 or 3 are passing)

Grade 0:	Blind test No corrosion inhibiting effect		Grade 0
Grade 1:	Blind test Minute corrosion inhibiting effect		Grade 1
Grade 2:	Blind test Medium corrosion inhibiting effect		Grade 2
Grade 3:	Blind test Good corrosion inhibiting effect		Grade 3



TEST RESULTS(JIS Z 1535) STEEL

試験金属「鋼」

試験前



VpCI
-126BLUE (US)



VpCI
-126ブルー (J)



参考試料 3



参考試料 4



参考試料5



参考試料6



参考試料7



ブランク



TEST RESULTS(JIS Z 1535) **COPPER**

試験金属「銅」

試験前



VpCI
-126BLUE (US)



VpCI
-126ブルー (J)



参考試料3



参考試料4



参考試料5



参考試料6



参考試料7



ブランク





試験報告書

防錆技協 第09-007号
平成20年 6月25日

伊藤忠プラスチック株式会社 殿

社団法人日本防錆技術協会



平成19年12月11日付お申し込みの試験結果は、次の通りであります。

気化性防錆フィルムの性能試験

試験方法 JIS Z 1535⁻¹⁹⁹⁴ (気化性さび止め紙) の下記項目による。

1. 気化性さび止め性 (20hr) : 5.4項による。
2. 試験片 : 鋼及び銅

試料 依頼者送付による気化性防錆フィルム 7点各9枚

- 試料番号
- | | |
|------------------------|-----------|
| 1 : VpCI-126 BLUE (US) | 5 : 別紙参考5 |
| 2 : VpCI-126 ブルー (J) | 6 : 別紙参考6 |
| 3 : 別紙参考3 | 7 : 別紙参考7 |
| 4 : 別紙参考4 | |

結果

試料番号	判定				試験時間
	GVTM TL 8135-0002による	JIS Z 1535による	鋼	銅	
1	Grade 3	Grade 3	発錆なし	変色なし	20Hr
2	Grade 3	Grade 3	発錆なし	変色なし	
3	Grade 2 > A < Grade 3	Grade 2	発錆	変色	
4	Grade 2 > A < Grade 3	Grade 2	発錆	変色	
5	Grade 2 > A < Grade 3	Grade 2	発錆	変色	
6	Grade 2 > A < Grade 3	Grade 2	発錆	変色	
7	Grade 0	Grade 0	発錆	変色	
ブランク	発錆	発錆	発錆	変色	

注 : 判定は、GERMAN VIA TEST METHOD TL 8135-0002及びJIS Z 1535の2方法で行った。

了

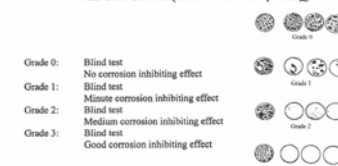
承諾番号 第 6314 号

事務局

試験月日 平成20年 5月 7日



VIA Test Grades (Grade 2 or 3 are passing)



Test Report

JACC No. 09-007

June 25, 2008

Itochu Plastics Inc.

Japan Association of Corrosion Control



The following is the test result responding to your test application of December 11, 2007.

Performance Test of Volatile Corrosion Inhibiting Films

Test method: Pursuant to the following items in JIS Z 1535⁻¹⁹⁹⁴,

1. Vapor inhibiting ability (20 hr): Item 5.4
2. Test piece: steel and copper

Specimen: Volatile corrosion inhibiting films sent by the test client (seven types, three films each)

- Specimen no.
- | | |
|----------------------------|----------------------------|
| 1: VpCI-126 Blue (US) | 5: see Ref. 5 in the annex |
| 2: VpCI-126 Blue (Japan) | 6: see Ref. 6 in the annex |
| 3: see Ref. 3 in the annex | 7: see Ref. 7 in the annex |
| 4: see Ref. 4 in the annex | |

Test result

Specimen no.	Test Result				Test time
	GVTM TL 8135-0002	JIS Z 1535	Steel	Copper	
1	Grade 3	Grade 3	no rusting	no tarnishing	20 hr
2	Grade 3	Grade 3	no rusting	no tarnishing	
3	Grade 2 > A < Grade 3	Grade 2	tarnishing	rusting	
4	Grade 2 > A < Grade 3	Grade 2	rusting	tarnishing	
5	Grade 2 > A < Grade 3	Grade 2	rusting	tarnishing	
6	Grade 2 > A < Grade 3	Grade 2	tarnishing	rusting	
7	Grade 0	Grade 0	tarnishing	rusting	
No inhibitor used	rusting	tarnishing	rusting	tarnishing	

Note: the evaluation was conducted based on two test methods, German VIA Test Method TL 8135-0002 and JIS Z 1535

Authorization no. 6314

Secretariat

Test date May 7, 2008

Kotaro Yano

VpCI BENEFITS

VpCI だからできること



VpCI-126ブルー+130ウレタンに代えたら



スプレー塗布
⇒ 乾燥・空包装
⇒ 安定な防錆効果

悩み解消！
VOC・工数削減

Cortec@CorrTainer™

防錆フィルムすら
不要に！



Cadillac GM Detroit
to Shanghai in
Cortec@CorrTainer™



BOEING 社よりの手紙

BOEING

June 18, 2003

The Boeing Company
PO Box 2207
Seattle, WA 98124

Cortec Corporation
4110 White Bear Parkway
St. Paul, MN 55110

Attention: Mr. Tim Rayburn

This is to acknowledge that Boeing Commercial Airplane, Fabrication Division, Auburn, WA is currently using Cortec's VpCI-126 corrosion inhibitor on aircraft structures fabricated in Auburn which are subsequently trucked to Wichita, KS. This practice has been ongoing for approximately 3 years and is working well. Boeing has experienced no corrosion problems since incorporating Cortec's product into our transportation strategy.

Sincerely,

Phil Pearson

Philip L. Pearson
Boeing Commercial Airplane
Packaging Engineering - T



VpCI-126防錆フィルムを既に3年以上継続的に使用しており、腐食問題とは無縁で今日まで来ています。

生分解 水溶性クリーナー使用

Cortec's VpCI™-415's synergistic blend of surfactants and corrosion inhibitors makes it the perfect choice for aircraft maintenance facilities.

Eco-Corr™ ESD 生分解の防錆 帯電防止



MilCorr Shrink だから



APPLICATION SHOW CASE

■ HEAVY IND.

- WIND POWER MOTOR HITACHI
- STEAM GENERATORS MITSUBISHI

■ ELECTRONIC WIRE

- COPPER SUMITOMO

■ BEARING

- BALL ROLLER BEARING, JTEKT



CORTEC's Vapor phase Corrosion Inhibitors (VpCI™) products are used in more than 70 countries and in various industries including space, aviation, ship, nuclear power, wind power, steel, auto parts (KD), bearing, machine parts, pump, tool, electricity, electric wire, medical equipment, metal-surface treatment, export packaging, golf club, strings (of musical instruments such as guitars), and gun industries. The application area is still expanding.

Please note that this document does not mean to guarantee the same results to all the customers.

We are now seeking customers who help us as a monitor for a limited time. Contact us for conditions, etc.

【Auto parts】

Dealer: 'Y' (initial) company

The customer, NDK, is a manufacturer specializing induction hardening, and is dealing with major auto manufacturers. At first they adopted our product for the parts of racing cars. They formerly used rust-inhibiting oil after machining SPCC carbon steel parts, and stored them in a square-bottom poly bag. However they experienced corrosion in humid season and spent approximately 800,000yen/month to eliminate the corrosion. After adopting VpCI-126 Blue, corrosion occurrence has dramatically decreased and they say "we rarely see corrosion now." We strongly recommended them to seal the space, but they have not thoroughly conducted it. ※ They say they experienced heavy corrosion from May to September, and the cost reduction of 800,000yen/month x 5 months, i.e., more than four million yen per year, is significant to them. To diffuse its use in other departments of the company, they are now creating a document for work standardization.

【Metal parts】

Dealer: 'N' company

The dealer is now delivering VpCI-126 Blue to 'A' company specializing metal processing and machine tool parts manufacturing. The dealer got the quotation of other company's corrosion inhibiting films at the time of price revision, and proposed changeover of films to the customer. However the customer then inversely pointed out the advantage of the performance of our products.

【Metal parts】

(Alumite treatment)

Dealer: 'C' company

Machine tool jig manufacturer: 'K' company
The dealer recommended VpCI-126 Blue to the customer, who had used rust inhibiting oil during in-process transfer until alumite treatment. At first the customer was half-hearted, but then experienced the corrosion inhibiting effect. Now they have significantly decreased the use of rust inhibiting oil in this process.

【Sintering and forging parts】

Dealer: 'M' company

The dealer got contacted by a customer who had tried our product sample one year ago. The customer is Towa Parts Co., Ltd., a sintering and forging parts manufacturer. They say they tested and compared several corrosion inhibiting films, and found the performance of VpCI-126 Blue was best. We received an order from them.

【Auto parts】

Dealer: 'S' company

The customer, 'o' company, is a major manufacturer of metal parts for drive-line, whose products are exported worldwide. They had been using a corrosion inhibiting film of other company for export packaging. A product of the customer was delivered to a Japanese-owned electrical component manufacturer in South Asia, passing through the equator. They had been suffered from corrosion trouble caused by the rapid change of temperature and humidity. Although the customer considered there was no difference among corrosion inhibiting films of various companies, we persuaded the customer to try VpCI-126 Blue partly at the packaging. Consequently the trouble was significantly improved, and now the customer always uses VpCI-126 Blue for export of the metal parts for drive-line. They say they received a mail saying "No problem. Thank you" from the manufacturer in South Asia who had corrosion trouble. We are now introducing VpCI-126 Blue to other factories of the customer.

【Export packaging】

Dealer: 'C' company

The customer, 'o' packaging company, has been packaging copper plates (rolled shape) of 'o' company (an electric wire company) for export. They formerly designated silica gel, barrier packaging and vacuum aspiration as their work standard. The dealer recommended VpCI-126 Blue, and the customer adopted it, reposing trust in past performances in foreign countries. They still use silica gel, but man-hours and time for vacuum aspiration have been significantly reduced, which leads to considerable total-cost reduction. They say the average working hours for it, which were about 30 minutes, are now reduced down to about 10 minutes. ※ For void parts such as control boards, we recommend the additional use of VpCI Emitter, etc.

【Metal parts】

Golf club manufacturer: 'o' company

The customer transports non-plated wedges (made of soft iron) manufactured in a factory in Southeast Asia to U.S. by sea. They had been suffered from corrosion and ask a brand-name product manufacturer in U.S. about preventive measures on one occasion. The manufacturer recommended CORTEC VpCI-126 Blue, and then the customer began to use it. They say they have not experienced a big problem since then.

【Auto parts】

Dealer: 'C' company

'o' company, a global bearing brass manufacturer, had been using a corrosion inhibiting film of other company. Although we haven't heard the exact circumstance, a French auto manufacturer, to which they exported the product, designated to use CORTEC VpCI-126 Blue corrosion inhibiting bag, and since then the customer has been using the product with the trade name "VpCI-126 Blue." ※ An affiliate factory of the customer, which is in a country in Europe, also uses CORTEC VpCI products.

【Electric wire】

Electric wire manufacturer: 'o' company

A high performance wire (copper) for information communications, which is used for PCs and cellular phones, had a problem of tarnish by oxidation after wire drawing. There were also several percent of leakage failure and a problem in silvering and tinning. When visiting their factory in Southeast Asia, the customer saw VpCI-126 Blue used there, and began to use it also in Japan. They said "the fraction defective has decreased, but not down to zero" (when we asked three months after the introduction), and said later "we don't have problems now and presume the fraction defective is less than 1%" (when we asked another person six months after). ※ We hear they acquainted an affiliate electric wire/electronic parts manufacturer with our product later, and the same effect was attained there, too.

【Surface treatment】

(Plating)

Dealer: 'K' company

A customer (a special plating processor) had been annoyed by corrosion of work waiting for processing at workplace. However the corrosion was drastically reduced by storing the work in VpCI-126 Blue corrosion inhibiting bag.

【Medical equipment】

'Y' company
The customer uses VpCI-101 Emitter (sponge type) for export and storage of dental equipment such as chair. They found that no corrosion occurred in equipment with VpCI-101, which was imported from Spain, and came to use it for export and storage of their own products. No corrosion problems have occurred since they adopted VpCI-101.

来自顾客与销售店的声音

CORTEC USERS' VOICE

歌德的气相防锈产品 (VpCI™) 在世界 70 多个国家的各个行业得到广泛应用。应用领域涵盖航天、航空、船舶、核发电、风力发电、钢铁、汽车零部件 (KD)、轴承、机械部件、泵、工具、电气、电线、医疗设备、金属表面处理、出口包装企业、高尔夫俱乐部、乐器中的吉他等弦乐器等，而且还在不断扩大。我们不承诺所有顾客都能够获得相同的结果，敬请各位顾客予以理解。目前我们正面向顾客限时召集商品评论员，请给予大力支持。有关条件等请咨询本公司。

【汽车部件】

销售店 Y 公司

顾客 NDK 是一家拥有主要汽车厂家客户的高频淬火的厂家。其商务往来的契机是该公司的产品被汽车厂家采用为赛车部件。以前在加工 SPCC 和碳素钢部件后，要涂抹防锈油，然后保管在角底塑料袋内，但是在湿度大的季节出现了锈蚀现象。为消除锈蚀一个月要投入 80 万日元的成本。据该顾客介绍，自从使用 VpCI-126 Blue 以后，腐蚀大幅度减少，“几乎不会锈蚀，或者只出现个别锈蚀现象”。尽管我们强烈推荐彻底密封，但顾客往往做得并不彻底。

※ 每年 5 月至 9 月是特别容易出现腐蚀的季节。一个月 80 万日元，按 5 个月计算，全年可降低成本 400 万日元。据说这家公司目前正在为公司其它部门普及而编制作业标准化的资料。

【金属部件】

销售店 N 公司

我们正在向金属加工和工作机械部件制造厂家 A 公司供应 VpCI-126 Blue。在更改价格时，我们获取了其它公司生产的防锈膜报价，并建议顾客更换供应商，可顾客却直言相告我们，我们产品的性能优于其它公司。

【金属部件】

(氧化铝膜处理)

销售店 C 公司

工作机械工装厂家 K 公司
我们建议在氧化铝膜处理工序之前的周转防锈上一直使用防锈油的顾客使用 VpCI-126 Blue。当初顾客还半信半疑，不过据说在体验防锈效果后，如今在该工序上防锈油的用量已经大大减少了。

【烧结与锻造部件】

销售店 M 公司

约一年前有一家顾客用防锈膜在样件上做了实验，最近突然与我们联系。这家顾客就是生产烧结和锻造部件的东和部件株式会社。他们说他们用好几个品牌的防锈膜做了对比实验，结果表明歌德的 VpCI-126 Blue 性能最好。于是他们向我们发了订单。

【汽车部件】

销售店 S 公司

顾客 O 公司是一家生产驱动系统金属部件的大型企业，产品畅销世界各地。该顾客以前出口包装使用的是其它公司生产的防锈膜。该公司提供给东南亚的某家日资电气设备部件厂家的部件由于跨越赤道等原因，急剧的温度和湿度变化使部件锈蚀，并一直为这一问题而大伤脑筋。这家公司认为哪个厂家生产的防锈膜都一样，我们说服了该顾客，让他们先部分使用 VpCI-126 Blue 试一试，结果问题得到了很大的改善，如今该公司在出口驱动系统的金属部件时，指定使用 VpCI-126 Blue。据说过去遭受锈蚀问题困扰的东南亚顾客还给 O 公司发来了“没问题，谢谢你们”的电子邮件。现在我们在顾客的其它工厂积极开展宣传。

【出口包装】

销售店 C 公司

顾客 O 包装公司为电线厂家 O 公司的铜板 (卷材) 负责出口包装。以前的标准作业是涂抹硅胶+防潮包装+抽真空。我们向该公司推荐了 VpCI-126 Blue，该公司相信这一产品在国外的信誉，于是便采用了。尽管现在依然在涂抹硅胶，但抽真空作业所化的费用和时间大大减少了，从而降低了综合成本。平均作业时间以前需要 30 分钟，现在缩短到了 10 分钟左右。 ※ 我们正建议该公司在控制盘等空隙部位增加使用 VpCI Emitter 等。

【金属部件】

高尔夫厂家 O 公司

在东南亚某工厂制造的未经电镀处理的高尔夫球棍 (软铁产品) 经海上运输到美国。该公司为产品生锈而发愁，他们偶然咨询一家美国的知名厂家，对方向他们推荐了 VpCI-126 Blue，于是该公司开始使用我们的产品。“自此以后再没有发生过大问题。”

【汽车部件】

销售店 C 公司

生产轴承轴瓦的全球企业 O 公司以前使用的其它公司生产的防锈膜。具体的契机不是很清楚，据说是出口目的地的欧洲汽车厂家指定使用 CORTEC VpCI-126 Blue 防锈袋，于是该公司使用了 VpCI-126 Blue 和带印刷的产品。 ※ 实际上与 O 公司同属一个体系的欧洲某国的工厂使用的就是 CORTEC VpCI 产品。

【电线】

电线厂家 O 公司

在计算机和手机上使用的高性能信息通信系统的导线 (铜线) 拉伸后会氧化，从而出现变色，而且出现百分之几的浸湿不良，使镀银和镀锡加工出现问题。O 公司有员工到东南亚的工厂出差和参观，看到现场在使用 VpCI-126 Blue，决定在日本也进行使用。3 个月后再询问该员工，他回答说：“不良率下降了，但还没有达到零”。(从那以后又过了 6 个月，再询问该员工，他告诉我们：“目前已不成为问题了，估计不良率不到 1%”。) ※ 之后该公司还向同一系列的其它电线和电子部件厂家介绍该产品，据说这些公司也获得了同样的效果。

【表面处理】

(电镀处理)

销售店 K 公司

某一从事特殊电镀加工的顾客一直为作业现场的处于待加工状态的工件的锈蚀对策而烦恼，通过用 VpCI-126 Blue 防锈袋保管工件，问题大幅度减少了。

【医疗设备】

Y 公司

该公司在牙科医疗设备 (椅子) 的出口和保管上使用 VpCI-101 Emitter (海绵型)。以前看到从西班牙进口的设备上因使用 VpCI-101 没有生锈，于是在自己公司产品出口和保管上也开始使用起来。在使用 VpCI-101 后再没有出现过生锈的问题。



CORTEC USERS' VOICE

CORTEC's Vapor phase Corrosion Inhibitors (VpCI™) products are used in more than 70 countries and in various industries including space, aviation, ship, nuclear power, wind power, steel, auto parts (KD), bearing, machine parts, pump, tool, electricity, electric wire, medical equipment, metal-surface treatment, export packaging, golf club, strings (of musical instruments such as guitars), and gun industries. The application area is still expanding.

Please note that this document does not mean to guarantee the same results to all the customers.
We are now seeking customers who help us as a monitor for a limited time. Contact us for conditions, etc.

【Auto parts】

Dealer: 'Y' (initial) company
The customer, NDK, is a manufacturer specializing in induction hardening, and is dealing with major auto manufacturers. At first they adopted our product for the parts of racing cars. They formerly used rust-inhibiting oil after machining SPCC carbon steel parts, and stored them in a square-bottom poly bag. However they experienced corrosion in humid season and spent approximately 800,000yen/month to eliminate the corrosion. After adopting **VpCI-126 Blue**, corrosion occurrence has dramatically decreased and they say "we rarely see corrosion now." We strongly recommended them to seal the space, but they have not thoroughly conducted it.
※ They say they experienced heavy corrosion from May to September, and the cost reduction of 800,000yen/month x 5 months, i.e., more than four million yen per year, is significant to them. To diffuse its use in other departments of the company, they are now creating a document for work standardization.

【Auto parts】

Dealer: 'S' company
The customer, 'o' company, is a major manufacturer of metal parts for drive-line, whose products are exported worldwide. They had been using a corrosion inhibiting film of other company for export packaging. A product of the customer was delivered to a Japanese-owned electrical component manufacturer in South Asia, passing through the equator. They had been suffered from corrosion trouble caused by the rapid change of temperature and humidity. Although the customer considered there was no difference among corrosion inhibiting films of various companies, we persuaded the customer to try **VpCI-126 Blue** partly at the packaging. Consequently the trouble was significantly improved, and now the customer always uses **VpCI-126 Blue** for export of the metal parts for drive-line. They say they received a mail saying "No problem. Thank you" from the manufacturer in South Asia who had corrosion trouble.
We are now introducing **VpCI-126 Blue** to other factories of the customer.

【Auto parts】

Dealer: 'C' company
'o' company, a global bearing brass manufacturer, had been using a corrosion inhibiting film of other company. Although we haven't heard the exact circumstance, a French auto manufacturer, to which they exported the product, designated to use CORTEC **VpCI-126 Blue** corrosion inhibiting bag, and since then the customer has been using the product with the trade name "VpCI-126 Blue."
※ An affiliate factory of the customer, which is in a country in Europe, also uses CORTEC **VpCI** products.

【Electric wire】

Electric wire manufacturer: 'o' company
A high performance wire (copper) for information communications, which is used for PCs and cellular phones, had a problem of tarnish by oxidation after wire drawing. There were also several percent of leakage failure and a problem in silvering and tinning. When visiting their factory in Southeast Asia, the customer saw **VpCI-126 Blue** used there, and began to use it also in Japan. They said "the fraction defective has decreased, but not down to zero" (when we asked three months after the introduction), and said later "we don't have problems now and presume the fraction defective is less than 1%" (when we asked another person six months after).
※ We hear they acquainted an affiliate electric wire/electronic parts manufacturer with our product later, and the same effect was attained there, too.

【Export packaging】

Dealer: 'C' company
The customer, 'o' company, packaging company, has been packaging copper plates (rolled shape) of 'o' company (an electric wire company) for export. They formerly designated silica gel, barrier packaging and vacuum aspiration as their work standard. The dealer recommended **VpCI-126 Blue**, and the customer adopted it, reposing trust in past performances in foreign countries. They still use silica gel, but man-hours and time for vacuum aspiration have been significantly reduced, which leads to considerable total-cost reduction. They say the average working hours for it, which were about 30 minutes, are now reduced down to about 10 minutes.
※ For void parts such as control boards, we recommend the additional use of **VpCI** Emitter, etc.

【Metal parts】

(Alumite treatment)
Dealer: 'C' company
Machine tool jig manufacturer: 'K' company
The dealer recommended **VpCI-126 Blue** to the customer, who had used rust inhibiting oil during in-process transfer until alumite treatment. At first the customer was half-hearted, but then experienced the corrosion inhibiting effect. Now they have significantly decreased the use of rust inhibiting oil in this process.

【Surface treatment】

Dealer: 'K' company
A customer (a special plating processor) had been annoyed by corrosion of work waiting for processing at workplace. However the corrosion was drastically reduced by storing the work in **VpCI-126 Blue** corrosion inhibiting bag.

【Metal parts】

Golf club manufacturer: 'o' company
The customer transports non-plated wedges (made of soft iron) manufactured in a factory in Southeast Asia to U.S. by sea. They had been suffered from corrosion and ask a brand-name product manufacturer in U.S. about preventive measures on one occasion. The manufacturer recommended **COTEC VpCI-126 Blue**, and then the customer began to use it. They say they have not experienced a big problem since then.

【Sintering and forging parts】

Dealer: 'M' company
The dealer got contacted by a customer who had tried our product sample one year ago. The customer is Towa Parts Co., Ltd., a sintering and forging parts manufacturer. They say they tested and compared several corrosion inhibiting films, and found the performance of **VpCI-126 Blue** was best. We received an order from them.

【Medical equipment】 'Y' company
The customer uses **VpCI-101** Emitter (sponge type) for export and storage of dental equipment such as chair. They found that no corrosion occurred in equipment with **VpCI-101**, which was imported from Spain, and came to use it for export and storage of their own products. No corrosion problems have occurred since they adopted **VpCI-101**.

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【汽车部件】 销售店 Y 公司

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【汽车部件】 销售店 S 公司

顾客 O 公司是一家生产驱动系统金属部件的大型企业, 产品畅销世界各地。该顾客以前出口包装使用的是其它公司生产的防锈膜。该公司提供给东南亚的某家日资电气设备部件厂家的部件由于跨越赤道等原因, 急剧的温度和湿度变化使部件锈蚀, 并一直为这一问题而大伤脑筋。这家公司认为哪个厂家生产的防锈膜都一样, 我们说服了该顾客, 让他们先部分使用 VpCI-126 Blue 试一试, 结果问题得到了很大的改善, 如今该公司在出口驱动系统的金属部件时, 指定使用 VpCI-126 Blue。据说过去遭受锈蚀问题困扰的东南亚顾客还给 O 公司发来了“没问题, 谢谢你们”的电子邮件。现在我们正在顾客的其它工厂积极开展宣传。

【汽车部件】 销售店 C 公司

生产轴承轴瓦的全球企业 O 公司以前使用的是其它公司生产的防锈膜。具体的契机不是很清楚, 据说是出口目的地的欧洲汽车厂家指定使用 CORTEC VpCI-126 Blue 防锈袋, 于是该公司使用了 VpCI-126 Blue 和带印刷的产品。

※ 实际上与 O 公司同属一个体系的欧洲某国的工厂使用的就是 CORTEC VpCI 产品。

【金属部件】 销售店 N 公司

我们正在向金属加工和工程机械部件制造厂家 A 公司供应 VpCI-126 Blue。在更改价格时, 我们获取了其它公司生产的防锈膜报价, 并建议顾客更换供应商, 可顾客却直言相告我们, 我们产品的性能优于其它公司。

【出口包装】 销售店 C 公司

顾客 O 包装公司为电线厂家 O 公司的铜板 (卷材) 负责出口包装。以前的标准作业是涂抹硅胶+防潮包装+抽真空。我们向该公司推荐了 VpCI-126 Blue, 该公司相信这一产品在国外的信誉, 于是便采用了。尽管现在依然在涂抹硅胶, 但抽真空作业所化的费用和时间大大减少了, 从而降低了综合成本。平均作业时间以前需要 30 分钟, 现在缩短到了 10 分钟左右。

※ 我们正加建议该公司在控制盘等空隙部位增加使用 VpCI Emitter 等。

【电线】 电线厂家 O 公司

在计算机和手机上使用的高性能信息通信系统的导线 (铜线) 拉伸后会氧化, 从而出现变色, 而且出现百分之几的浸湿不良, 使镀银和镀锡加工出现问题。O 公司有员工到东南亚的工厂出差和参观, 看到现场在使用 VpCI-126 Blue, 决定在日本也进行使用。3 个月后又询问该公司一员工, 他回答说: “不良率下降了, 但还没有达到零”。(从那以后又过了 6 个月, 再询问该公司另一员工, 他告诉我们: “目前已不成为问题了, 估计不良率不到 1%”。

※ 之后该公司还向同一系列的其它电线和电子部件厂家介绍该产品, 据说这些公司也获得了同样的效果。

【金属部件】 (氧化铝膜处理) 销售店 C 公司

工作机械工厂装厂家 K 公司
我们建议在氧化铝膜处理工序之前的周转防锈上一直使用防锈油。顾客使用 VpCI-126 Blue。当初顾客还半信半疑, 不过据说在体验防锈效果后, 如今在该工序上防锈油的用量已经大大减少了。

【表面处理】 (电镀处理) 销售店 K 公司

某一从事特殊电镀加工的顾客一直为作业现场的处于待加工状态的工件的锈蚀对策而烦恼。通过用 VpCI-126 Blue 防锈袋保管工件, 问题大幅度减少了。

【烧结与锻造部件】公司 销售店 M 公司

约一年前有一家顾客用防锈膜在样件上做了实验, 最近突然与我们联系。这家顾客就是生产烧结和锻造部件的东和部件株式会社。他们说他们用好几个品牌的防锈膜做了对比实验, 结果表明歌德的 VpCI-126 Blue 性能最好。于是他们向我们发了订单。

【医疗设备】Y 公司

该公司在牙科医疗设备 (椅子) 的出口和保管上使用 VpCI-101 Emitter (海绵型)。以前看到从西班牙进口的设备上因使用 VpCI-101 没有生锈, 于是在自己公司产品出口和保管上也开始使用起来。在使用 VpCI-101 后再没有出现过生锈的问题。

コーテックの気化性防錆製品は、世界70カ国以上で、また様々な業界で御使用いただいております。宇宙、航空機、船舶、原子力発電、風力発電、鉄鋼、自動車部品(KD)、ペアリング、機械部品、ポンプ、工具、電気、電線、医療装置、金属表面処理、輸出梱包業者、ゴルフクラブ、楽器・ギターの弦、銃器、など、まだまだ広がっております。

全てのお客様に全く同様の結果を保証するものではありませんので、御承いただいたきたく願いたします。条件などは御問合わせ願います。尚、現在期間限定でモニターとして御協力いただいたお客様を募集しております。

【自動車部品】

販売店 Y 社様

お客様 NDK様は、主要自動車メーカーを得意先にもつ、高周波焼入れのメーカーです。きつかけはレーシングカーのパーツ用として御採用いただいたのが始まりでした。従来、SPCC・炭素鋼製パーツの加工後、防錆油を使用し、角底ポリ袋に保管しておりましたが、多湿の時期に腐食が発生。その腐食除去に月間 80 万円程度かけておられました。VpCI-126 ブルーを使用するようになってからは、腐食の発生は激減し、“ほとんど、たまにしかさびません”とのこと。密封を強く推奨しているのですが、お客様はあまり徹底してくれていません。

※毎年 5 月から 9 月が特に腐食が激しかったとのこと。1ヶ月で 80 万円 X5 ヶ月で毎年 400 万円以上のコスト削減は大きいとのことでした。現在社内他部署での普及のため、作業標準化の文書作成をしてもらえるそうです。

【金属部品】

販売店 N 社様

金属加工・工作機械部分品製造 A 社様に VpCI-126 ブルーを納入中。価格改訂時に他社製防錆フィルムの見積もりを取得し、お客様に切り替えをご提案しましたが、お客様から他社品との性能の差を教えられてしまいました。

【金属部品】

(アルマイト処理)

販売店 C 社様

工作機械ジグメーカー K 社様 アルマイト処理までの工程間移動の防錆を従来防錆油で行っていたお客様に VpCI-126 ブルーの使用をお勧めしました。当初お客様は半信半疑でしたが、防錆効果を体験いただき今ではこの工程での防錆油の使用量がかなり減ったそうです。

【焼結・鍛造部品】様

販売店 M 社様

先日一年ほど前にサンブルワークしていたお客様から突然連絡がありました。お客様は焼結鍛造部品のメーカー東和パーツ株式会社様です。いくつかの防錆フィルムで比較試験を行った結果、コーテック VpCI-126 ブルーの性能が一番であったとのこと。ご注文をいただきました。

【自動車部品】

販売店 S 社様

お客様の O 社様は、ボール・ローラベアリングの大手。お客様は従来輸出包装に他社製防錆フィルムを使用しておられました。輸出された部品はタイ・シンガポールを経由しインドにある日系電装部品のお客様向けに納入されておりましたが、実は腐食トラブルに悩みつけておられました。防錆フィルムはどここのメーカーも皆同じと思っておられるお客様を説得し、VpCI-126 ブルーを先ず一部だけ実際に使用してもらったところ、トラブルが大きく改善されたようで、今ではそのボールベアリングの輸出には VpCI-126 を御指定いただいております。インドのお客様から O 社様には、“ノープロブレム・サンキュー”のメールが送られてきたそうです。現在 お客様の他の工場へも随時ご紹介中です。

【輸出梱包】

販売店 C 社様

お客様の O 梱包様では、電線メーカー O 社様の銅板(巻物上)の輸出梱包をしておられます。従来、シリカゲル+バリア包装+真空吸引を作業標準としておられました。VpCI-126 ブルーをご推奨のところ、海外で実績を信用いただき御採用いただきました。現在もシリカゲルは使用しておられますが、真空吸引作業にかかる工数と時間が大きく軽減されトータルコストが軽減しました。作業時間は平均すると従来 30 分程度かかっていたものが、10 分程度まで短縮されたそうです。※機械輸出の際は、制御盤など空腔部へは VpCI エミッター等の追加使用のご検討をお勧めします。

【金属部品】

ゴルフクラブメーカー O 社様

東南アジアの工場で製造した非メッキのウェッジ(軟鉄製)を米国に海上輸送。錆の発生で困っていたが、あるとき米国のブランドメーカーに問い合わせのところ、CORTEC 社 VpCI-126 ブルーの推奨を受け使用。“それ以降大きな問題は起こっていないようだ”

【自動車部品】

販売店 C 社様

軸受け金属のグロバルメーカー O 社様では、従来他社製防錆フィルムを使用。きつかけは分らないのですが輸出先のフランスの自動車メーカーより CORTEC VpCI-126 ブルー防錆袋の使用を指定され、VpCI-126 ブルーと印刷の入ったものを使用していただいています。

※実はこの O 社様の系列のヨーロッパのある国の工場では、コーテック VpCI 製品が使われております。

【電線】

電線メーカー O 社様

パソコン・携帯に使われている 高性能情報通信系のワイヤー(銅)が伸線後酸化のため変色し、また濡れ不良が数%あり、緩めつき・錫めつき加工の問題がありました。O 社様の東南アジアの工場出張・見学の際に現場で VpCI-126 ブルーが使用されているのを見て、日本で使用を踏み切りました。(3ヵ月後にお尋ねした時)“不良の率は落ちたがゼロにはなっていない”(その後6ヵ月後に別の方にお尋ねした時)“現在は問題となっていないので、不良率1%未満と予想される”

※その後同じ系列の電線・電子部品の加工メーカーに御紹介いただき、そちらの会社でも同様の効果が上がっているそうです。

【表面処理】

(メッキ処理)

販売店 K 社様

特殊メッキ加工のお客様では従来より、作業現場で加工待ちの状態にあるワークの腐食対策に頭を悩ませておりましたが、VpCI-126 ブルー防錆袋で保管しておくことで不具合が激減しました。

【医療機器】 Y 社様

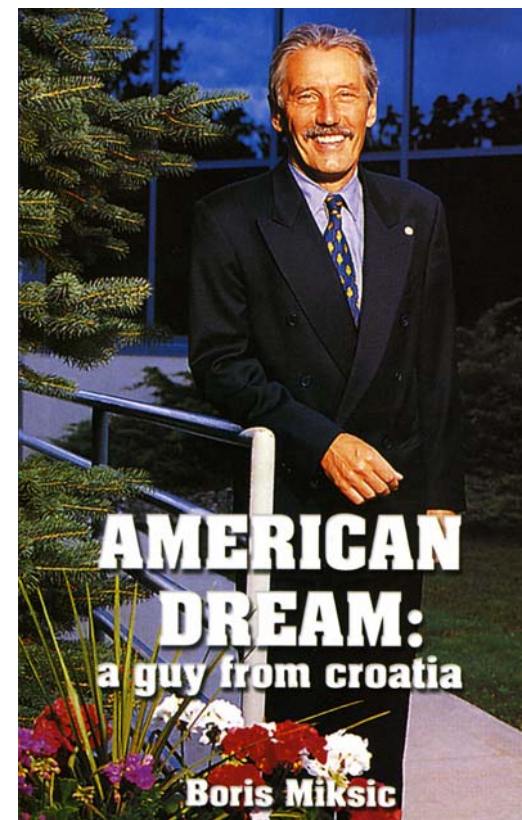
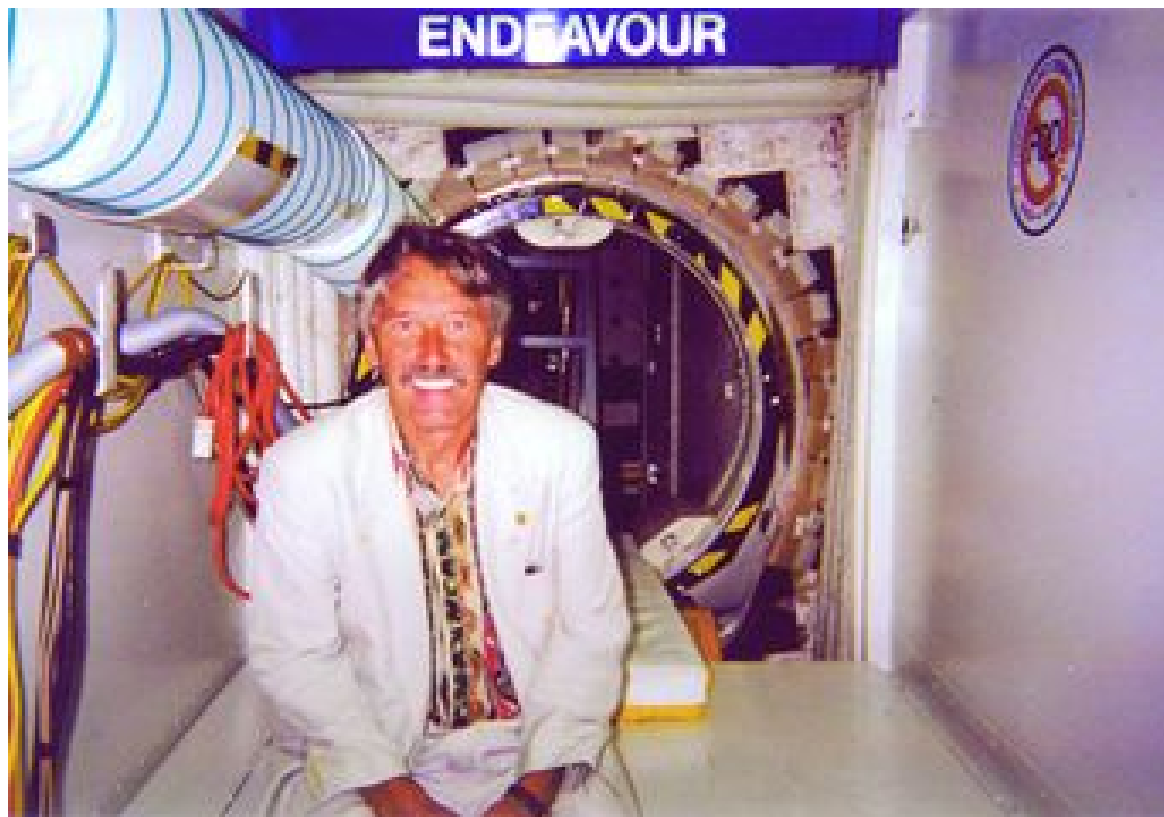
歯科医療機器(椅子)の輸出・保管用に VpCI-101 エミッター(スポンジタイプ)を使用しています。以前からスペインより輸入している機器に VpCI-101 が使用されていて腐食が発生しないのを見ており、自社製品の輸出・保管用に使用するようになりました。VpCI-101 の使用後は錆びのトラブルは起こっていません。

IN CONCLUSION

- ***ALL THE EFFORTS SHOULD BE AIMED TO LET OUR CUSTOMERS USE OUR VpCI PRODUCTS TO TEST BY THEMSELVES.***
- ***JUST USING OUR PRODUCTS IN PART IS OK!***
- ***EXPLAIN HOW TO USE AND INTRODUCE RELATED PRODUCTS LIKE EMITTERS.***

THANK YOU VERY MUCH!

***Cortec Rockets to ASIA
to Share Corrosion Solutions Together!***





OUR TARGET 2009-2011

- ***TRAJECT INFO IN AN EASY WAY***
IN ORDER TO BECOME A CORTEC FAN
- ***EXCHANGE AND SHARE INFORMATION***
AMONG ASIAN COUNTRIES
- ***PREPARE FOR***
“TOTAL CORROSION CONTROL”
IN THE JAPANESE MARKET