



VpCI® FORMULATED PRODUCTS FOR PROCESS INDUSTRIES



# VpCI®-629 BIO, Patented

## PRODUCT DESCRIPTION

VpCI-629 Bio is the only oilfield inhibitor product on the market which combines high level of corrosion protection, biodegradability, and low toxicity.

VpCI-629 Bio is soluble in crude oil and dispersible in fresh water and brine solutions. As a fast-acting and long-term inhibitor, VpCI-629 Bio forms an effective corrosion inhibiting barrier for both ferrous and non-ferrous metals in the presence of water, halogens, and corrosive gases such as dissolved oxygen, sulfur dioxide, carbon dioxide, and hydrogen sulfide.

Continuing protection between treatments is assured due to solubility, dispersibility in crude water mixtures, and long-term water displacing film formation provided by VpCI-629 Bio. In addition, the product provides vapor phase inhibition to protect areas inaccessible through direct solution contact. This unique characteristic protects internal parts during low fluid levels and combats atmospheric corrosion in production and storage tanks. Field applications and tests, performed by independent laboratories verify that VpCI-629 Bio is effective at a concentration level as low as 5-15 ppm.

## FEATURES

- Biodegradable and non-toxic
- Environmentally acceptable in different regions
- Prevents stress corrosion cracking (SCC) and hydrogen embrittlement
- Effective for a wide range of refined hydrocarbons, crude, and oil/water mixtures
- Forms a corrosion inhibiting barrier with high film persistency to give continuous, long-term protection
- Vapor phase action provides protection against corrosion from atmospheric conditions for overhead units in processing production and storage tanks
- Available in diluted form for easy direct application without premixing
- Post-action inhibition effect

## TYPICAL APPLICATIONS

VpCI-629 Bio is designed for use in crude oil processing equipment, pipelines, refinery, and petrochemical plant equipment and systems. VpCI-629 protects against pitting, corrosive gases, and water intrusions.

## TYPICAL PROPERTIES

### VpCI-629 Bio

Appearance	Brown liquid
Non-volatile Content	65-70%
Post-action Effect	Up to 60 days
Pour Point	1°F (-17°C)
Protection Coefficient	93-99% (NACE TM-01-77)
Solubility	
Crude oil	Dispersible to soluble
Fresh water	Dispersible
Brine	Dispersible
Density	7.5-7.6 lb/gal (0.90-0.91 kg/l)

## DOSAGE/USAGE

VpCI-629 Bio is oil soluble and water/brine dispersible product. It needs to be agitated before using.

Type of System to be Protected	Type of Corrosive Medium	Application/Dosage Data	
		Continuous Application	Intermittent Application
Pipelines and collection systems for water-encroached crude oil	Separate crude oil/water mixtures with a level of encroachment up to 98% CO <sub>2</sub> -varying concentration H <sub>2</sub> S-up to 6,000 ppm	Continuous injection of 5-15 ppm	Intermittent treatment: 1,700-3,500 ppm during a 48hr. period 4 times a year
Oil wells and equipment	Crude with a high level of water encroachment and high concentrations of CO <sub>2</sub> and H <sub>2</sub> S	Injection of the inhibitor into the clearance hole (5-15ppm)	Periodic injection of 400-1500 ppm every 2-2 1/2 months



## PERFORMANCE DATA FOR VpCI-609 Bio

### <sup>1</sup>Corrosion Test

Wheel Oven Test @160°F (71°C) for 2 days

Concentration ppm	Effectiveness, %
5	92.3
25	92.5
100	98.7

### <sup>2</sup> Emulsion Tendency, Condition of the test:

Concentration of VpCI-629 Bio - 100ppm

Water: Crude Oil = 80:20

Temperature = 180°F (82°C)

Product	% of Emulsion		
	5 min	15 min	30 min
VpCI -629 Bio	8	8	8
Corton IRN 181 (Champion)	18	18	18
Blank	6	6	6

<sup>1,2</sup>Tests performed by P.T. Coltex Pacific, Indonesia

### Dynamic circuit test

Loop Operating conditions:

Temperature	Ambient
Velocity	6-8 m/min
Pressure	2-3 psi
Material	Carbon Steel 1010
Brine	NaCl 5%
	CH <sub>3</sub> OOH 0.5%
	H <sub>2</sub> S (saturated)
Test Timing	24 hours
Inhibitor Dose	50 ppm

**Effectiveness** (polarization resistance technique)

### FOR INDUSTRIAL USE ONLY

**KEEP OUT OF REACH OF CHILDREN**

**KEEP CONTAINER TIGHTLY CLOSED**

**NOT FOR INTERNAL CONSUMPTION**

**CONSULT SAFETY DATA SHEET FOR MORE**

**INFORMATION**

## Prevention of the stress Corrosion Cracking

NACE TM-01-77 Procedure

Condition of the test:

Concentration of VpCI-629 Bio - 200 ppm

Steel - ANSI 1045-1018 annealed

Load - 12000 psi (843 kg/cm<sup>2</sup>)

Product	Time of failure, days
VpCI-629 Bio	>30
Blank	8

### Biodegradability, %

5 Days	10 Days	25 Days
39.3%	52.4%	>60%

\*According to 40 CFR 136 and amendments

### Toxicity:

#### 48 hour Static-Renewal

#### Mysidopsis Bahia Definitive Toxicity Test Results (EPA/600/4-90/027F) data

NOEC/LOEC, ppm CTS M. bahia	LC50, ppm CTS, M. bahia
1000 ppm / 3000 ppm	1511.6

<sup>1</sup> Test	Result
Skeletonema costatum	100 ppm
Acartia lonsa	135 ppm
Corophium volutator	10017 ppm
Scophthalmus maximus	347 ppm

<sup>1</sup>Testing performed in accordance with Oslo-Paris commission protocol (Report No. R 026-03, AnalyCen Ecotox AS, Norway, 2003)

### PACKAGING AND STORAGE

VpCI-629 Bio is packaged in 5 gallon (19 liter) plastic containers, 55 gallon (208 liter) metal drums, liquid totes, and bulk. Store product in tightly closed containers. Shelf life is 36 months.

### LIMITED WARRANTY

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