

Corrosion inhibitors series «Unikor-3»

Documents for products: Technical conditions / MSDS / SEE conclusion / Passport of quality



APPOINTMENT:

- for the protection of underground and surface equipment of oil and gas production wells, installations and pipelines from atmospheric, oxygen, carbon dioxide, hydrogen sulfide and general acid corrosion
- have increased lubricating properties and are used as additives to mineral lubricants in simple units

PRINCIPLE OF ACTION:

- form a protective film on the walls of the equipment that prevents corrosion
- act as absorbers of acidic components of well products

SCOPE OF APPLICATION:

- closed cycle systems at oil and gas sector production and processing facilities (oil and gas installations, production wells, pipelines, transportation systems, liquid hydrocarbon storage systems, formation and wastewater disposal systems, etc.

Characteristics of the products of the line

Indicator	Name of product										Control method
	Unikor-3.01	Unikor-3.02	Unikor-3.03	Unikor-3.04	Unikor-3.05	Unikor-3C	Unikor-3.06	Unikor-3.07	Unikor-3.08	Unikor-3	
Appearance	Liquid from transparent to light brown color		Liquid from transparent to brown color				Liquid from yellow to dark brown color				according to item 6.2
Density, g/cm ³	0,810-0,960										item 6.5
Kinematic viscosity at (20±1) °C, cSt	8,0-25,0		10,0-32,0								item 6.7
pH, not lower than	7,0										item 6.3
Freezing point, °C, not higher	- 25										item 6.6
Protective effect*, %, not less than	80		90				80				item 6.4

* The efficiency of the products of the line approved by TU. Efficiency tests were carried out in accordance with GOST 9.506-87, and in accordance with the standards and requirements for the aggressive environment from the profile mining enterprises of Ukraine.

Composition of the products of the line

Name of the inhibitor	Composition	Type of corrosion	Solubility			
			HC	aromatic HC	alcohols	water
Unikor-3.01 and 3.02	Solution of anti-corrosion additives and surfactants of ionic and non-ionic types in alcohols	O ₂ , CO ₂ , H ₂ S	-	-	+	+
Unikor-3, 3C, 3.03, 3.04 and 3.05	Mixture of complex amines, fatty acids and surfactants in combination with solvents of organic origin	O ₂ , CO ₂ , H ₂ S	+	+	+	-
Unikor-3.06	Acid corrosion inhibitor, fatty amines	Water solutions HCl	-	-	+	+
Unikor-3.07 and 3.08	Solution of a mixture of fatty amino acids and surfactants in organic solvents	O ₂ , CO ₂ , atmospheric	+	+	-	-

The actual efficiency in different model environments

Type of corrosion	Model environment	C, ppm	Tenv, °C	texpos, h	The method of inhibition	Electro-chem. method* Z, %	Grav. method** Z, %
O ₂ , CO ₂	80% (Water + 30 mg/l NaCl + CH ₃ COOH (up to pH=4,0) + Diesel 20%	150	+60	6	injection	Not lower 96,0	Not lower 90,0
O ₂ , CO ₂ , H ₂ S	80% (Water + (3% NaCl + HCl (up to pH 3,5÷4) + 2 g/l H ₂ S) + Diesel 20% H ₂ S gas was obtained from by FeS and HCl reaction: FeS+2HCl=FeCl ₂ ↓+H ₂ S↑	150	+60	6	injection	Not lower 98,0	Not lower 90,0
Water solutions HCl	15% water solution HCl	1000	+60	6	injection	Not lower 85,0	Not lower 80,0

* Electrochemical studies were carried out using a corrosimeter with bimetallic electrodes.

** Gravimetric studies were carried out in a hermetic glass autoclave at a temperature of +60°C, with constant stirring on a magnetic stirrer. The samples are immersed in the corrosion solution in proportion to the content of the model medium so that ¼ of the sample is in the hydrocarbon phase, and ¾ is in the electrolyte for 6 hours.

Foam characteristics *

C, ppm Unicor-3, 3C, 3.01..3.08	V of foam, ml	Tendency to foaming
Without inhibitor	120	Low
200	130	Low
500	100	Low
1000	100	Low
2000	100	Low

* Testing was carried out on a 25% solution of DEA in water. The initial test volume of liquid, which was taken as "0" – 100 ml.

Emulsifying ability *

Indicator	C, ppm Unicor-3, 3C, 3.01..3.08						
	Without inhibitor	100	200	500	1000	2000	5000
Separation time, min	1	2	4	6	10	15	20
The nature of phase separation	full	full	full	full	full	full	full

* Testing was carried out in an environment of i H₂O + Diesel (50/50).



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