

Inhibitory ingredients to protect exposed surfaces of mechanisms from rust and corrosion

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Annotation: This thesis provides information about the corrosion of metal objects and its effect on the operation of the mechanism. There is also information about the activities of anti-corrosion research institutes.

Keywords: Rust, activity, process, surface, technique, accident, wear, coatings, storage, result, consumption, mechanism, pollution

Due to the relatively hot and dry climate in Uzbekistan, many seasonal and seasonal equipment is stored outdoors. As a result, the surfaces of the parts corrode and the rate of wear during the start-up process increases several times.

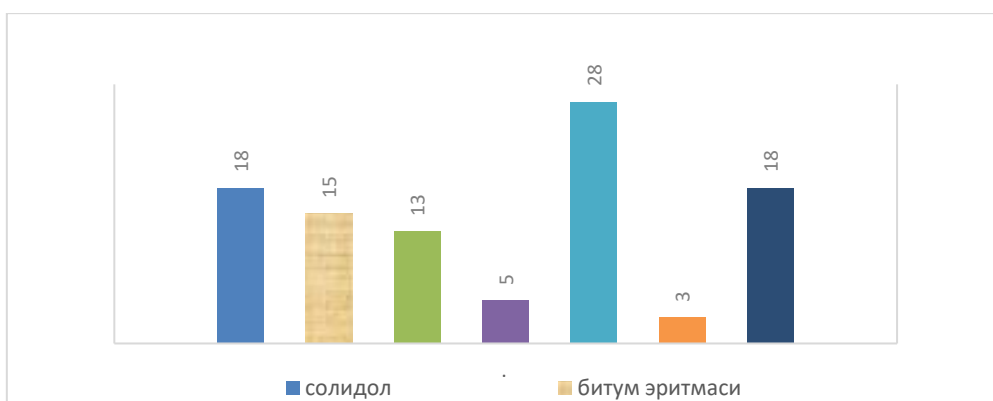
According to our observations, such cases of emergency erosion are most often observed in combines, cultivators, road construction machines, and vehicles used for landscaping. Such parts and their corrosion conditions are shown in the following figures.

Expired oils or bituminous mortars continue to be used in storage processes, based on traditional practices from the 1970s. However, such coatings do not fully protect existing surfaces from rust, which can lead to excessive wear of parts from the moment the mechanisms are put into operation. The result is additional repairs, extra spare parts, equipment downtime for several days, and additional financial costs. In addition, bitumen and expired oils can contaminate the environment due to their high viscosity





Based on interviews with industry experts, the following histogram provides an analysis of the materials currently used to protect equipment from rust:



Proportion of anti-corrosion materials in enterprises

In the world economy, various inhibitory ingredients have been developed and are being used effectively to protect equipment from rust. Of these, thin-layer compositions are common, especially on metal surfaces. The types and uses of such content are listed in the table below:

Table 1. Classification of anti-rust oil products

Tarkib-lar guruxi	Chet maxsulotlari markalari	Qo'llanilish joyi	Asosiy xossalari		
			Qatlam qalinligi, mkm	Qovushqoqli-gi VZ-4, sek	Aktiv qopla-ma %
D-1 guruxi	Testil 506, HR-216A, SACI-200	avtomobillar tag qismi	100-250	100-300	50-80
D-2 guruxi	Shell Ensis Fluid 256, Tenox Film 30, P,N-101 A, SACI-500	avtomobillar tag qismi, mastikalar ustidan	20-100	30-70	40-70
ML-1	Tectyl 309 ML, Castrol Rustilo 160,	Kuzovlarning ichki g'ovak yuzala-ri, zavod	10-50	15-50	30-60

	Bygging Professional 120	sharoitida			
ML-2	Protex Car DH, Protet V 800, Tectyl 309 AG	Kuzovlarning ichki g'ovak yuzalari, syervis markazlarida	30-80	-	30-60
Z guruxi	Rustline AE 170, Protex W/52, Contrakor SSN Contrakor A-40	Extiyot qismlar	5-40	10-20	20-25

The products listed in the table above contain various components, including anti-rust inhibitors.

Oil refineries in the Republic of Uzbekistan do not produce products similar to those in the table that can be used against rust, and in this regard, the creation of their analogues is one of the current chemical problems of our time.

Tashkent State University of Transport is conducting research on the creation of such products. The killers require addition.

Based on the above, new compositions were developed and laboratory tested on the basis of modified samples of expired oils and fatty acids extracted from soapstock, which is considered an industrial waste.

Table 2. Laboratory results of anti-corrosion materials

Moylash materiallaridan namunalari	Himoya ko'rsatkichlari		Yuzadan suvni siqib chiqarish, d, mm		
	Namlik kamerasida zanglash yuzasi %	3 % NaCl eritmasida zanglash yuzasi %	D1, 30 sekund	D2, 3 minut	D3, 5 minut
Motor moyi (MO')	80	36	18	20	16
Bitumli NG-216A	40	22	24	26	26
Solidol	62	48	12	10	8
Litol-24	20	18	16	18	18
Solidol+AKOR-1	22	20	34	36	36
IHSM Uz-3A	8	6	54	87	92

Research has shown that these products can be used in many parts as a lubricant that acts as both a worker and a protector.

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