BASF
The Chemical Company

Korantin® PP

Corrosion inhibitor used to protect the underlying metal when scale and oxide deposits are removed with acids

Chemical nature Propargyl alcohol alkoxylate

Molecular formula $C_6H_{10}O_2$

Properties

Physical form	Clear, yellow or brown liquid
Concentration (100 % – water content)	65 – 69 %
Water content (DIN 51777, Part 1, ASTM D 1744)	31 – 35 %
pH (ISO 976, 23 °C)	7.0 – 10.5

The above information is correct at the time of going to press. It does not necessarily form part of the product specification.

A detailed product specification is available from your local BASF representative.

Solubility

Korantin® PP is easy to dissolve in water and organic solvents. Concentrated acids and oxidizing acids should be diluted before they are mixed with solutions of Korantin® PP in order to prevent decomposition products from being formed.

Storage

Korantin® PP must be protected from light and heat and prevented from coming into contact with the ambient air. It has a shelf life of two years in its sealed original packaging.

Application

Korantin® PP is added to solutions of acids that are used to remove rust and scale from metal parts. It prevents the underlying metal from being corroded without interfering in the removal process.

Korantin® PP is particularly effective as a corrosion inhibitor for steel and aluminium, but its performance on cast iron, especially graphite-bearing cast iron, largely depends on the composition of the alloy. Its performance on non-ferrous metals is determined to a large extent by the cleaning process, especially the type of acid and its concentration and the temperature. The performance of Korantin® PP needs to be tested in advance in each individual case.

It has been demonstrated that Korantin® PP interacts synergistically with chelating agents such as the products in our Trilon® range, which helps to reduce corrosion even further. Enhanced performance can be obtained by applying Korantin® PP in combination with chelating agents at a ratio of between 1 : 1 and 10 : 1.

Levels of addition

Hydrochloric acid and sulphuric acid need to be applied at a concentration of 5 – 20 % and a temperature of 20 – 60 °C. Korantin® PP generally needs to be applied at a concentration of 0.1 – 4 %, expressed as a proportion of the water-free acid. It needs to be applied at the top end of this range at elevated temperatures. Korantin® PP is consumed during the pickling process along with the acids as the result of drag-through, etc., and so it also needs to be replenished when the pickling solution is topped up with fresh acid.

Other acids

Korantin® PP can also be applied in combination with phosphoric acid and mixtures of phosphoric acid and hydrochloric acid. It can be also be employed as a corrosion inhibitor in acids such as amidosulphonic acid, formic acid, acetic acid and citric acid.

Pickling and descaling

Korantin® PP has a passivating action on bare steel in acid pickling processes, even if it is applied in very small amounts. It does not interfere in the removal of scale, and it does not attack the underlying steel to any appreciable extent. Korantin® PP is also very effective in cases in which very uneven deposits need to be removed with mineral acids. The acid solution can be circulated to increase the rate at which the scale is removed. The duration of the process depends on the thickness of the deposits and the accessibility of the steel surfaces to be treated in pipework and reactors, etc. It is usually sufficient to treat the metal for 1 – 4 hours at 40 – 60 °C in order to remove scale deposits. Korantin® PP is a very effective corrosion inhibitor for iron, steel and stainless steel, but it can also perform well on bronze, copper, brass and aluminium, etc. Nevertheless, the effectiveness of Korantin® PP should always be tested in advance.

High-throughput pickling

It is possible to remove oxides from steel plate and wire very quickly by increasing the temperature. It can be sufficient to pickle plate and wire for 1 – 3 minutes at 50 – 60 °C. Usually, only a very small amount of Korantin® PP needs to be added in order to maintain the passivating action, but no general recommendations can be made here and the amount of Korantin® PP that is required has to be determined by tests in each individual case. The concentration of pickling solutions has to be monitored, and the ingredients need to be replenished from time to time.

Derusting baths

Nuts, bolts and other components often have to be refurbished by chemical derusting. They can be derusted very effectively with a combination of mineral acids and Korantin® PP. It is sufficient to treat the metal parts in an acid bath at room temperature or, if necessary, at a temperature of 40 – 60 °C. The rust can be removed down to the bare metal without any appreciable loss of metallic iron, and the dimensions of components are largely unaffected. Between 25 minutes and four hours are required, depending on the extent of the corrosion.

Rinsing

Metals parts that have been treated with acids must always be rinsed thoroughly with hot water and then dried. They then need to be treated with alkaline solutions, mineral oil emulsions or passivating salt solutions in order to prevent corrosion again.

Formulations

Suggested formulations are given in our brochure on Korantin® PM and Korantin® PP.

Safety

We know of no ill effects that could have resulted from using Korantin® PP for the purpose for which it is intended and from processing it in accordance with current practice.

According to the experience we have gained over many years and other information at our disposal, Korantin® PP does not exert any harmful effects on health, provided that it is used properly, due attention is given to the precautions necessary for handling chemicals, and the information and advice given in our safety data sheets are observed.

Labelling

Please consult the current safety data sheet for information on the classification and labelling of Korantin® PP and other information relevant to safety.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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