

CONDURSAL N523 / N525

Stop-off paint for nitriding / nitrocarburizing

List for Troubleshooting

Preface

CONDURSAL N523/ N525 can be applied easily, similar to an oil paint. As with painting, it is important to clean and degrease the surfaces to be coated thoroughly prior to painting, to use soft brushes, to apply a coating of uniform thickness and to allow the coating to dry thoroughly before the workpieces are put into the furnace. **Thorough drying of the coating can be checked easily by fingernail test.**

As a main component CONDURSAL N523 / N525 contains a metal powder which tends to settle at the bottom of the tin after extended storage time. Therefore it is important to stir the paint thoroughly prior to use; **just shaking the tin will not provide satisfactory homogenisation!**

For cases where in spite of proper use poor insulation effect or other trouble is noted, please find listed below the possible defects, the reason why they can occur and the way how to avoid them.

TROUBLE	POSSIBLE REASONS FOR TROUBLE	HOW TO AVOID TROUBLE
Paint runs off after applying	1. Workpieces have not been degreased satisfactorily prior to coating	Clean parts thoroughly by vapor degreasing or alkaline washing prior to applying the paint
	2. Workpieces were too warm at the time when paint was applied (for instance after vapor degreasing)	Let workpieces cool down to ambient temperature (20 to 25 °C) prior to coating
	3. Paint has not been stirred or has been thinned excessively	Use paint as delivered but stir thoroughly prior to use; add small amounts of "Special Thinner" only if thickening has occurred due to evaporation of solvent
	4. Paint has been applied in a too thick coating	Apply paint in a thin coating of uniform thickness; if necessary because of long nitriding time, apply twice but make sure that first coating has dried completely before second one is applied
Paint pops off after drying	Surfaces of workpieces have been wet or greasy when paint was applied	Clean parts thoroughly by vapor degreasing or alkaline washing and make sure that they are dry prior to coating



TROUBLE	POSSIBLE REASONS FOR TROUBLE	HOW TO AVOID TROUBLE
Paint runs off in the nitriding furnace	1. Paint has been applied in a too thick layer / coating has not been allowed to dry thoroughly 2. Parts have been preoxidized at temperatures of more than 380°C 3. Coating has come into contact with oxygen in the nitriding furnace due to - Incorrect atmosphere control - cracking / leaking of the retort of the furnace	Apply paint in a thin coating of uniform thickness and let it dry thoroughly Limit preoxidizing temperature to 380°C max. Repair generator Repair retort
Protection against nitrogen pickup has been found to be non-uniform or nonsatisfactory	1. Paint has been applied in a too thin or non-uniform layer	Stir paint thoroughly prior to use; apply paint in a layer of even thickness; if necessary for long nitriding times apply twice but keep in mind that first coating must be completely dry before second one is applied
Insulation or poor nitriding / nitrocarburizing has occurred in non-coated areas	1. Parts have been put too close together within the batch 2. Coated areas did exceed 30% of the total surface of the batch 3. Poor atmosphere circulation in the retort	Avoid direct contact or too close settling of coated and noncoated parts / areas within the load Do not insulate more than 30% of the total surface Improve atmosphere circulation
After nitriding workpieces show small silvery spots on non-coated surface areas	Paint has dripped down from areas coated with excessive thickness or from holes / internal threads filled with the paint or residues left in the retort from the previous nitriding processes have been blown across the batch by the circulating gas atmosphere	Apply the paint not excessively thick; do not pour it into holes / internal threads filling them completely. Remove the dusty residues of CONDURSAL N523 / 525 from the retort after every nitriding cycle using a vacuum cleaner
Inspection claims that a white nitriding layer has been found under the CONDURSAL N523 / N525 coating	In most cases the detected layer is in fact not a nitriding layer but a thin tin layer which is normal and necessary for effective protection provided by CONDURSAL N523 / N525	Effective protection can be proven easily in such a case by measuring microhardness of the layer

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