

Rilsan powders used for coating of truck splines for over 40 years

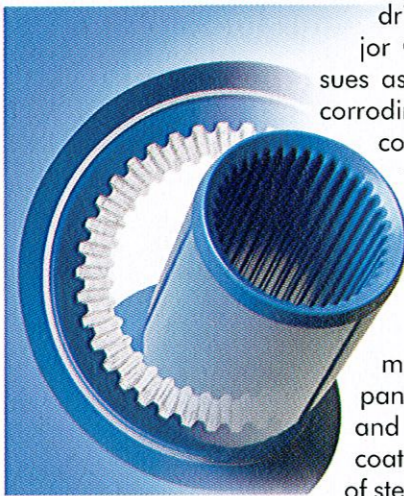
Rilsan fine powders, introduced in the early 1950s, are being used in the automotive industry for a growing range of applications. Environmentally friendly, polyamide 11 is derived from a renewable raw material of plant origin that is not a food crop.

These powders are used to coat metal parts for corrosion protection. The coating imparts excellent properties of polyamide 11 to the metal substrates. Its properties include a low coefficient of friction, excellent wear properties, chemical resistance to hydrocarbons, high heat distortion temperature and good creep resistance under load.

Rilsan has been used to coat heavy duty truck splines for more than 40 years. The life of a coated truck spline can be 10 times longer than that of an uncoated truck spline. Due to this phenomenal increase in service life, the PA 11 coating is used extensively in all the major industrial countries.

The coating helps to prevent galling and seizing. The slightly irregular surface of the broached coating acts as pockets for the lubricant. Due to the relatively low modulus of the coating compared to the metal, the lubricant gets trapped in these pockets when torque loads compress the coating. The lower coefficient of friction of the polyamide 11 causes less heat build-up within the spline members and prevents rapid deterioration of the lubricant.

With the historical performance and the ease of application of Rilsan coatings on truck drive shafts, this technology was extended to 4 WD and pickup truck



drive shafts in the mid-1990s. One major OEM was experiencing warranty issues as some splines on their vehicles were corroding. Additionally, the metal-to-metal contact made a "clunking" noise when the vehicle decelerated rapidly. An important benefit offered by the metal-to-polyamide 11 coating contact is to dramatically reduce vibration and improve noise dampening.

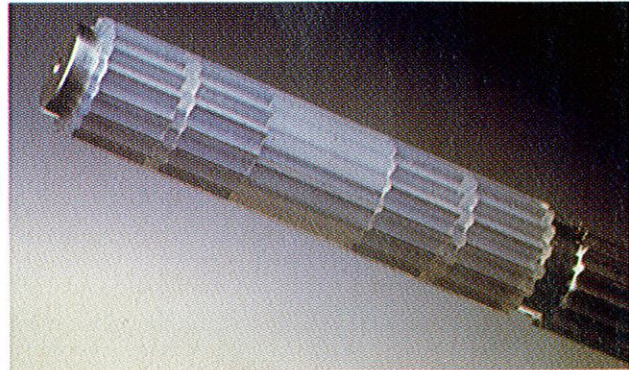
These benefits, along with the polyamide 11's corrosion protection, have expanded this application to numerous 4 WD and rear wheel drive vehicles. Most of the coated spline materials have been made of steel, but now aluminum spline shafts are also being coated with Rilsan PA11.

A natural expansion of this technology has been to coat steering columns for automobiles, light trucks and SUVs. The lubricity of the coating makes the telescoping steering column shafts work smoothly and with little effort. This application of nylon 11-coated steering columns is relatively new, but is growing rapidly as many companies are expanding their coating facilities globally.

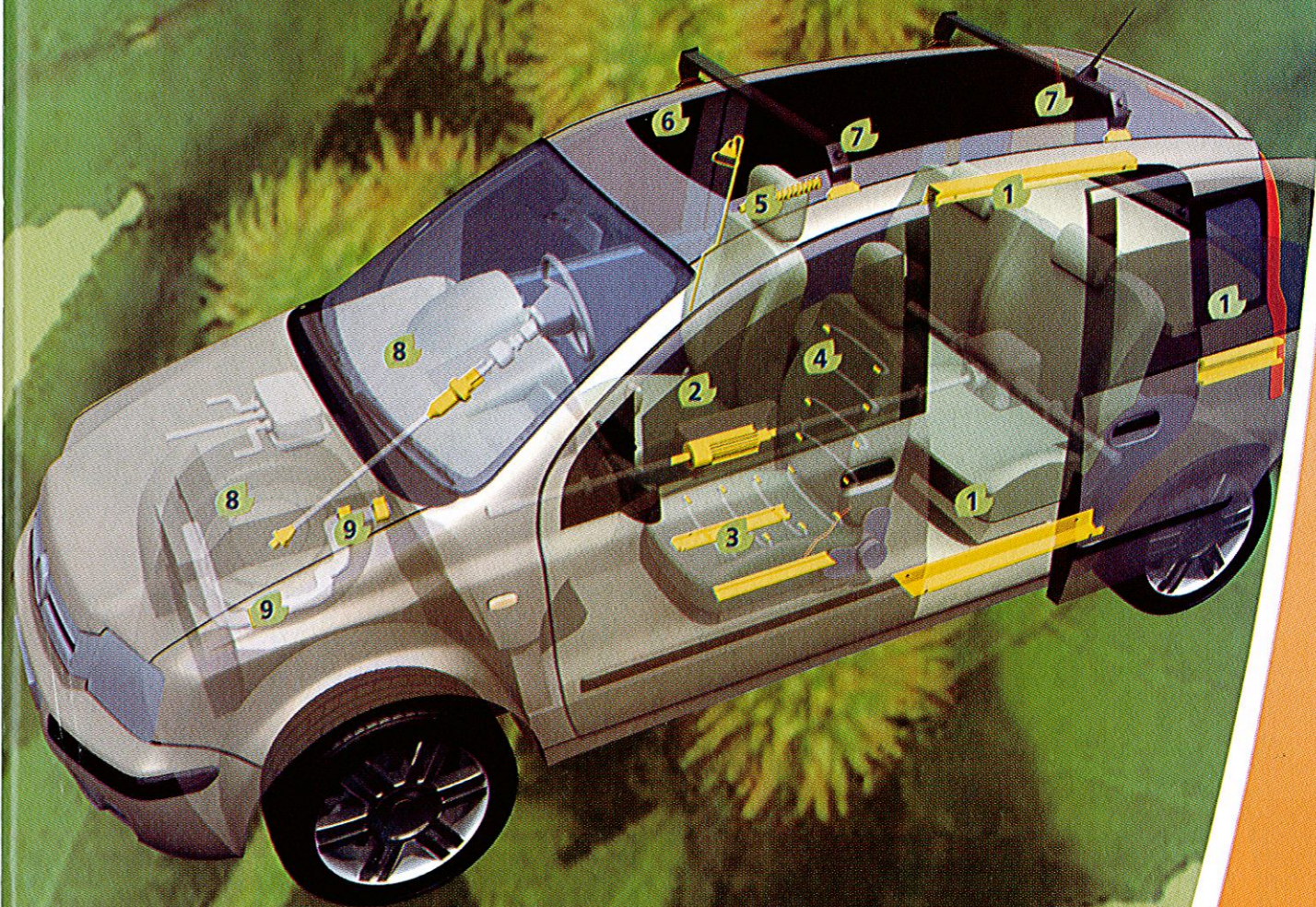
Easy to use and apply

The Rilsan coating is typically applied to the spline by a dip coating method. The metal surface needs to be cleaned. The organic residue can be removed by degreasing or alkaline washing. Inorganic materials such as rust can be removed by sandblasting or chemical etching. A primer is typically applied by dipping, but can be sprayed. The primer provides adhesion between the Rilsan coating and the spline. The spline is then pre-heated for two reasons: to activate the primer, and to impart enough heat energy in the spline to melt the polyamide 11 and form a coating. The pre-heated metal parts are then dipped in a fluidized bed of powder. When the hot part is dipped in the fluidized bed, the powder flows to all parts of the spline, melts and forms a complete coating on contact with the hot metal. The coating is then broached or machined to allow for tight mating tolerances.

These proven applications are excellent examples of how Rilsan fine powders provide a large combination of high performance properties that meet the manufacturers' expectation of higher quality and performance.



Rilsan® Fine Powders: the solution for High Performance and Eco design.



If you are looking for corrosion and wear resistance, noise reduction, or weight reduction; then Rilsan® Fine Powder coatings are the materials of choice.

In addition to their exceptional properties, Rilsan® Fine Powders are derived from renewable resources. They are produced from Amino 11, which is a unique monomer obtained from natural vegetable oil*.

Protect your metal parts with Rilsan® powders, easy to apply and extremely durable for long lasting performance.

*Oil is produced from non-edible and non-GMO crop, which is not used for food production.

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