

Colloidal Silica at Home

With its remarkable versatility, LUDOX® colloidal silica has made itself an essential part of modern life. Explore the objects below to learn more about some of colloidal silica's many applications.

WANT TO LEARN MORE? GET MORE INFORMATION FROM W. R. GRACE, THE MANUFACTURER OF LUDOX® COLLOIDAL SILICA, [HERE](#).



1 CLEARING THE AIR

Emission Control

Raw exhaust from car engines can be toxic. Modern cars remove gases, like carbon monoxide, with catalytic converters. Colloidal silica can play multiple roles in the converter.

A Converter Closeup

LUDOX® colloidal silica is included in many components of the catalytic converter, serving as a high-temperature glue for metal oxides and as the silica source for the synthesis of the zeolite catalyst.

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2 PICTURE PERFECT

Shiny Paper

Glossy cast-coated papers are perfect for posters and packaging with bright, eye-catching colors—but only if they provide a good surface for ink retention. An outer layer of a colloidal silica-based coating provides a bright, clear top coat.

Printed with Care

Coating inkjet or photo paper with colloidal silica allows inks to adhere to the surface while water is absorbed by the receiver layer. This coating also prevents the ink from bleeding into the material below, resulting in crisp and clear images and preserving the glossy appearance of the paper.

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3 A SMOOTH OPERATOR IN THE KITCHEN

Ceramic Cookware

Untreated metal pans may seem smooth, but those surfaces contain microscopic scratches that can turn your meal into a clingy mess. Sol-gel ceramic coatings made with colloidal silica form an even veneer that fills in surface scratches to create smooth non-stick cookware.

Turn Up the Heat

Compared to other non-stick surfaces, sol-gel coatings are harder and can function at higher temperatures, up to 450°C/840°F. A conventional coating will begin to degrade at 350 °C (662 °F), releasing potentially hazardous fine particles and gaseous compounds.

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4 THE PRECISION CASTING CLUB

Fore!

Today's golf clubs are made using a technique with roots in antiquity: investment casting. Modern investment casting relies on molds formed from colloidal silica-based ceramics.

Time to Shape Up

Investment casting is based on a millennia-old method called lost wax casting. A wax form is embedded in plaster; the wax is then melted away, leaving an empty cast for molten metal. Modern colloidal silica-based molds can withstand the blazing temperatures needed to precisely shape aluminum, titanium, or steel.

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5 A BURNING NEED

Nice Fire

Gas fireplaces burn cleaner and offer greater control than wood-burning fireplaces. Many homeowners turn to realistic-looking artificial logs made with colloidal silica. These particles bind together heat-resistant fibers, forming a material that's molded into ceramic-based logs that can take the heat for up to a decade.

Savings and Sustainability

Compared to wood-burning fireplaces, gas fireplaces can provide greater heating efficiency, have lower annual costs, and emit 99% fewer particles than wood-burning fireplaces.

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