SPECIALITY CHEMICALS FOR LAUNDRY DETERGENTS
(COLOUR CARE / GUARD)

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Colour Care or Colour Guard are special dye fixation ingredients that improve wash fastness of dyes, protecting coloured fabrics from discoloration and/or fading during washing. It maintains colour integrity and retains the initial brilliance of fabrics. Colour guard are dye-locking imidazole derivative that fix dyes in place and keep fugitive dyes from redepositing on other garments by a process known as dye-transfer inhibition or DTI.

DTI agents are aromatic molecules that work by complexing fugitive dyes. PVP or Polyvinylpyrrolidone, which was commercialized in the early 1990s, is one such product. ChromaBond S-100, a patented poly (4-vinylpyridinium betaine) based on pyridine chemistry is the next-generation inhibitor extensively used in Europe and U.S. Another DTI compound, is Reilly's poly-4-vinylpyridine-N-oxide (PVNO), patented by P&G in the early 1990s and commercialized in several products around the globe. It was later licensed to Reilly a leader in pyridine chemistry, as part of a P&G plan to generate additional revenue from royalties. Reilly is now an associate company of ISP.

ISP claims leadership in dye-transfer inhibition with three dye-transfer products that have its own detergent formula niche. PVP is a lower cost product for basic brands, whereas their other two pyridine compounds are targeted at different premium applications. ChromaBond S-100 is recommended for non bleach-containing detergents and ChromaBond S-400 (PVNO) for bleach containing detergents.

Alco Chemicals, a division of National Starch & Chemicals, claims that their new DTI agent is several times more effective than PVP. The new Alco product, which departs from traditional aromatic DTI chemistry, works through a combination of hydrogen bonding and electrostatic interaction with the fugitive dye molecule. It's light in colour, unlike competing products, and is effective in both liquid and powdered detergents. It also represents a departure from Alco's traditional acrylate chemistry core. Alco as a complement to the DTI compound also has a dye fixative based on a condensation polymer nonacrylate.

Ciba speciality chemicals, is also active in colour protection, largely through dye fixative technology. Ciba’s home care effort is its “Tinofix dye fixative”, which is found in cleaning products around the world.

As Alco is trying to move from DTI compounds into fixatives, Ciba is expanding beyond fixatives into the DTI arena and trying to develop a unique oxidative additive that selectively destroys fugitive dyes, rather than merely complexing them as current products do.

One option that can be tried is to consider fixative chemistry as a component of a stand-alone, pre/post rinse laundry auxiliary product that could also resolve product formulation issues.

However let us acknowledge that incorporating dye-fixative chemistry into laundry detergents can be a difficult proposition. "Are we not are trying to apply the fixative to the fabric and at the same time trying to remove soil and stains?"