EASTMAN

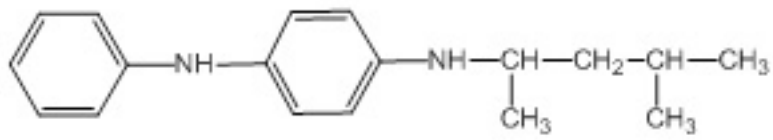
# Product Data Sheet

## Santoflex™ 6PPD Pastilles

## CAS No. 793-24-8

## Product Description

Chemical name: N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine
Molecular weight: 268




Santoflex™ 6PPD functions as a powerful antioxidant and antiozonant for natural and synthetic elastomer compounds and as a synthetic polymer stabilizer. Santoflex™ 6PPD provides protection against fatigue degradation in both static and dynamic operating conditions.

**MAJOR APPLICATIONS AND PROPERTIES**

- Santoflex™ 6PPD applications include the use in pneumatic tire components, solid tires, belts, hoses, cables, automotive mounts, bushings and general mechanical products that are exposed to continuous and intermittent dynamic operating conditions and require protection from ozonation.
- Santoflex™ 6PPD provides powerful antiozonant and antioxidant properties with excellent high temperature, fatigue and flex resistance to rubber compounds.
- It gives efficient stabilization for a wide range of solution and emulsion polymers.
- Santoflex™ 6PPD is a more active antioxidant than quinoline or diphenylamine based antioxidants.
- Santoflex™ 6PPD gives better long term fatigue resistance and ozone protection than IPPD. Due to its specific molecular structure and higher rubber solubility, it is less affected by environmental variables, such as heat or leaching, leading to greater durability.
- Santoflex™ 6PPD gives rubber protection against catalytic degradation by copper and other heavy metals.
- The product has no negative effects on compound adhesion to textiles or steel cord up to levels of 2 phr. Above this concentration it may bloom and interfere with ply to ply and ply to cord adhesion.
- It will discolor compounds and cause severe contact and migration staining.

## Compounding Information

Add 1-3 phr of Santoflex™ 6PPD to rubber compounds for resistance to ozone and flex fatigue. Increasing the concentration increases the level of protection. To provide maximum performance in static applications include a blended wax in the compound formulation, appropriately chosen for the application's temperature range. Santoflex™ 6PPD can also be used for oxidation resistance alone. Its antioxidant performance is

maximized at 0.5 phr. Higher levels actually reduce antioxidant protection even though ozone and flex fatigue resistance increase with higher levels.

Typical use information (phr):

| | Tire sidewall | Brassed steel-cord skim | NR/SBR conveyor belt cover | NR/SBR V-belt | NR engine mount |
|---|---|---|---|---|---|
| Santoflex 6PPD | 2 - 4 | 2 | 1 - 2 | 2 | 1 - 2 |
| TMQ | 1 - 2 | - | 1 | - | 0 - 1 |
| Antiozonant wax | 1 - 3 | - | - | - | - |

Note: No PPD should be used at levels less than 1 phr in surface applications, as the ozone cracking pattern produced can lead to catastrophic failure.

Adding TMQ will maintain a compound's resistance to oxidation as well as protect Santoflex™ 6PPD from oxidizing, thus further enhancing long term performance. To protect NBR compounds from ozone attack use 4 phr of Santoflex™ 6PPD. It will also help protect polychloroprene but can reduce bin storage stability. To stabilize solution or emulsion polymerized elastomers add 0.3 to 0.6% (dry basis) of Santoflex™ 6PPD.

## Typical Properties

| Property | Typical Value, Units |
|---|---|
| Form | Pastilles |
| Melting Point, Final | 46-51°C |
| Viscosity @ 60°C | 27-38 cSt |
| Specific Gravity @ 60/15°C | 0.986-1.000 |

## Storage

Store Santoflex™ 6PPD pastilles in single stacked pallets in a cool, dry, well ventilated area, avoiding exposure of the packaged product to direct sunlight. Double stacking of palletized material and/or exceeding 35°C can result in unusual compaction of product.

## Handling Precautions

For detailed information on toxicological properties and handling precautions please refer to the current Safety Data Sheet. This information sheet can be downloaded from our web site or requested from the nearest Eastman office and should be consulted before handling this product.



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