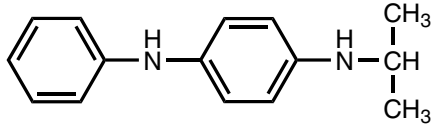


## Product Data

### SANTOFLEX IPPD



N-Isopropyl-N'-phenyl-p-phenylenediamine

CAS Reg. No.: 101-72-4

Molecular weight: 226

### FUNCTION

Santoflex IPPD is a high activity antidegradant for natural and synthetic elastomers.

### MAJOR APPLICATIONS AND PROPERTIES

- Santoflex IPPD 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 IPPD provides powerful antiozonant and antioxidant properties with excellent high temperature, fatigue and flex resistance to rubber compounds.
- While used primarily for ozone resistance, Santoflex IPPD is a more active antioxidant than quinoline or diphenylamine based antioxidants.
- Santoflex IPPD (alone or in combination with Flectol TMQ) provides compound 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.
- Santoflex IPPD is regulated for use in articles in contact with food as specified under FDA 21 CFR 177.2600 and under BgVV XXI, Category 4.

### COMPOUNDING INFORMATION

Add 1-3 phr of Santoflex IPPD to rubber compounds for resistance to ozone and flex fatigue. Increasing level provides increasing protection. Increasing the levels much above 3 phr provides little additional 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 IPPD provides excellent resistance to short term fatigue and high ozone concentrations as compared to other paraphenylenediamine (PPD) antiozonants. It is also more susceptible than other PPD antidegradants to environmental effects such as oxidation and leaching which can limit its long term performance. Adding Flectol TMQ antioxidant in combination with Santoflex IPPD helps to protect the PPD from oxidation thus enhancing long term performance.

Typical use information (phr):

	Tire sidewall	Brassed steel-cord skim	NR/SBR conveyor belt cover	NR/SBR V-belt	NR engine mount
Santoflex IPPD	2 - 4	2	1 - 2	2	1 - 2
Flectol 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.

### Specialty polymers

Santoflex IPPD can be used in NBR to enhance the very poor ozone resistance of this polymer. High levels of Santoflex IPPD are needed and therefore, due to its rubber solubility, a blend with Santoflex 6PPD or Santoflex 6PPD alone would normally be preferred.

Santoflex IPPD is normally not recommended to be used in polychloroprene because it can cause poor bin storage stability of the compounds.

## **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 Flexsys office and should be consulted before handling this product.

## **STORAGE RECOMMENDATIONS**

Store Santoflex IPPD in a cool, dry, well ventilated area, avoiding exposure of the packaged product to direct sunlight.

## **PRODUCT INFORMATION**

<b>Santoflex IPPD</b> Product form	<b>flk</b> flakes	<b>pst</b> pastilles	
<b><u>PRODUCT SPECIFICATIONS</u></b>			<b><u>Test method</u></b>
Appearance	dark purple brown flakes	dark purple brown pastilles	FF97.5
Purity (GC) (%) min.	95.0	95.0	FGC97.10
Heat loss (%) max.	0.5	0.5	FGr97.7
Ash (%) max.	0.1	0.1	FGr90.9
<b><u>TYPICAL PROPERTIES</u></b>			
Melting point, final (°C)	75-80	75-80	
Specific gravity at 20°C	1.180	1.180	

For further information please contact your local Flexsys office or regional Flexsys headquarters:

<b>Regional Headquarters</b>	<b>:</b>	<b>Brussels</b>	<b>Akron</b>	<b>Singapore</b>
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