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**RUBBER CHEMICALS**  
**-ANTIOXIDANTS-**  
**STAINING**

## ANTIOXIDANT PANA

**DESCRIPTION:**

Antioxidant PANA is phenyl-a-naphthylamine, a powerful general-purpose antioxidant with high polymer solubility. It is an excellent antioxidant for rubber goods and an effective anti-flexcracking agent. CAS # 90-30-2.

**TYPICAL PROPERTIES:**

|                        |   |
|------------------------|---|
| Appearance.....        | brown to dark violet friable powder   |
| Specific Gravity ..... | 1.1 – 1.23  |
| Melting Point.....     | 50°C minimum (122°F)  |
| Solubility.....        | benzene, acetone, carbon tetrachloride,<br>ethyl acetate, methylene chloride, and |
|                        | ethyl alcohol. Insoluble in water.  |
| Storage Stability..... | excellent   |
| Dispersion .....       | excellent in rubber due to low<br>melting point                                   |

**GENERAL RECOMMENDATIONS:**

Should be used in rubber products for protection against oxidation and thermal conditions, as well as anti-flexcracking under dynamic stress. Useful in compounds based on natural rubber, polyisoprene, SBR, NBR, polybutadiene and polychloroprene where discoloration or staining can be tolerated. Antioxidant PANA, however, is non-blooming and has no affect on cure with a very slight affect on polymer viscosity. Antioxidant PANA does not exhibit antiozonant qualities; however, when used with Akrochem Antiozonant PD-1, PD-2, or MPD-100, this property can be enhanced. In a general rubber compound, 1.0 - 2.0 phr antioxidant is recommended. However, where anti-flexcracking properties are of importance, the use 2.0 - 3.5 phr of Antioxidant PANA is suggested or use 2.0 phr Antioxidant PANA in conjunction with 2.0 phr Antiozonant PD-1.

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