

PARAPHENYLENEDIAMINE

_____ Name

_____ Date

also called... **4-phenylenediamine, 1,4-diaminobenzene, 1,4-benzenediamine, 4-aminoaniline, or p-diaminobenzene.** Some very closely related agents are *p*-toluenediamine, *p*-aminodiphenylamine, 2,4-diaminoanisole, *o*-aminophenol, and *p*-aminoazobenzene.

What is it?

Paraphenylenediamine (PPD) is the major allergen in hair dye. It is present in most two-bottle type hair dyes, and also in some tints and rinses. Allergy may produce scalp swelling, blistering, or scaling. Sensitivity may show up instead as swelling of the eyelids or ears, or a rash on the forehead, neck, or side of the face. Hairdressers may develop rash on their hands and arms.

Where might it be found?

hair dye, coloring rinse
comb-in hair tint
shampoo-in highlight, lowlights
skin paint, dark makeup
dark lipstick
henna tattoo
dye for socks, support hose
shoe dye
textile, rubber, and fur dyes
violin chin-rest stain
antioxidant in antifreeze, fuels
corrosion inhibitor in oils
gasoline sweetener
plastic manufacture
rubber antioxidant
printing ink
antiozonant
milk testing reagent
water testing reagent
retarder in acrylate production
lithography, photocopying
photo or x-ray film developing

Let your doctor know that a generalized

reaction could occur from taking closely related saccharin sweeteners, thiazide diuretics, sulfonamide antibiotics, sulfonylurea antidiabetic agents, PAS, or celecoxib.

How to avoid this allergen:

Do not use products that contain **paraphenylenediamine**. Check the complete ingredient list of everything you use for one of the names highlighted at the top. For products already at home that do not list ingredients, go to the store and inspect the original box or package. Some products' ingredients are found on the internet at the manufacturer's or store's website, or at <http://householdproducts.nlm.nih.gov>, <http://www.cosmeticsdatabase.com>, or <http://www.drugstore.com>.

Caution your beautician, hairdresser, barber, physician, nurse, and caretaker to avoid using products that contain paraphenylenediamine or closely related chemicals in your care.

Possible cross-reactions:

Some persons allergic to PPD will also react to black rubber mix, parabens, benzocaine group anesthetics, PABA family sunscreens, and azo dyes, especially orange and yellow, often in ballpoint pens.

To identify possible workplace exposure, check the Material Safety Data Sheet (MSDS) and complete ingredient list of each product you encounter. Wear long rubber or vinyl gloves to protect against contact with PPD at work, or ask your employer to substitute an alternative product.

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In case of a severe reaction to PPD hair dye,

- ◆ Wash your hair and scalp well with a mild shampoo or soapless cleaner to remove the excess dye.
- ◆ Then apply a compress of old cotton cloths moistened with either a 2% hydrogen peroxide solution or a 1:5000 dilution of potassium permanganate to completely oxidize the dye. [Once PPD is fully developed or oxidized, it no longer stimulates the allergic response.]
- ◆ You may apply cool olive oil or lime to help ease tightness and soften crusts.
- ◆ Your doctor may prescribe a topical cortisone oil or lotion.
- ◆ Your doctor may give you an injection of cortisone or a course of pills to take by mouth.

***Safe alternative non-PPD hair coloring agents:
Always check the labels!***

Elumen by Goldwell

(uses acid dyes) www.elumen-haircolor.com

Clairol Loving Care (*original*--uses disperse dyes)

temporary rinses (use lead acetate) (for example
some Grecian Formula; best for gray)

henna (vegetable product; best for red)

hair bleaches and highlights

vegetable hair dye (e.g. walnut shell juglone)