

Information regarding Carolina Biological PTC Papers

Phenylthiocarbamide (PTC), also known as Phenylthiourea, is routinely used in genetics studies. It is infused into paper strips, and test subjects place a strip on their tongues to determine whether they can taste the PTC. This ability is an inherited trait.

Carolina Biological Supply Company produces strips that it sells via its print and online catalogs. A sample of strips prepared using our standard formulation and process was tested by an independent laboratory. That laboratory determined that each strip contains, on average, 14.3 micrograms of PTC..

As PTC has an oral rat LD50 of 3 mg per kilogram of body weight, the test results would lead you to believe that a 20-pound (9-kilogram) toddler would have to consume 1,888 strips to ingest the amount of PTC required to reach the LD50 level. That calculation is as follows

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$9 \text{ kg} \times 3 \text{ mg/kg}$ gives you 27 milligrams required to be ingested to reach the LD50 level. 27 mg divided by .0143 milligrams per strip gives you 1,888 strips. This would lead one to deduce, correctly, that using these strips for genetics tests in a controlled environment is safe. Even in an uncontrolled environment (e.g. a household with children) it would not seem to pose too much of a risk. Of course, we would never want to see an exposure anywhere close to the LD50 level. We sell to educational institutions. We advise and expect that the test papers will be used under teacher supervision.

We can look at the concentration of PTC on these strips and determine whether or not the strips can be considered toxic. How does this concentration of PTC per strip translate to an LD50? Each strip weighs, on average, 10.1 mg. A 10.1 mg strip yields .0143 mg of PTC. 210 strips would yield 3 mg of PTC. 210 strips would weigh $10.1 \times 210 = 2121 \text{ mg}$. As these strips do not contain any other toxic material, we can deduce that the oral rat LD50 of Carolina's PTC strips is 2,121 mg/kg. This is very low toxicity.

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