



Gradient is an environmental consulting firm with nationally recognized specialties in risk assessment and toxicology, contaminant transport and fate, and environmental chemistry.

FACT SHEET

Samples of laundered shop towels which had been used and then laundered, were collected from 23 locations in 14 states throughout the U.S. The laundered shop towels were then submitted to an independent lab, which analyzed them for 27 metals and for oil and grease. All of the laundered shop towels contained oil and grease, and many contained elevated levels of metals, such as lead.

To assess the significance of the possible exposure to elevated levels of metals in the laundered shop towels, we estimated how much of the metals people might ingest, using certain assumptions explained in the companion report and using 2.5 laundered shop towels per day, in a manner involving relatively frequent contact as might occur in an auto body shop or maintenance area. We compared the estimated amounts ingested to various criteria, including California Environmental Protection Agency (CalEPA) Proposition 65 regulatory limits. The Proposition 65 limits are exposure limits based on health endpoints such as cancer or reproductive effects. If a chemical exposure exceeds the limit, manufacturers may be required to notify the public of this exceedance. We also compared estimated intakes to toxicity criteria of the U.S. Environmental Protection Agency (USEPA) and the Agency for Toxic Substances and Disease Registry (ATSDR).

The results of this evaluation for lead are presented in the bar chart below. We calculated the lead intakes using the maximum amount of lead and the average amount of lead on the laundered shop towels tested, which represent the plausible range of exposure to lead found in laundered shop towels.

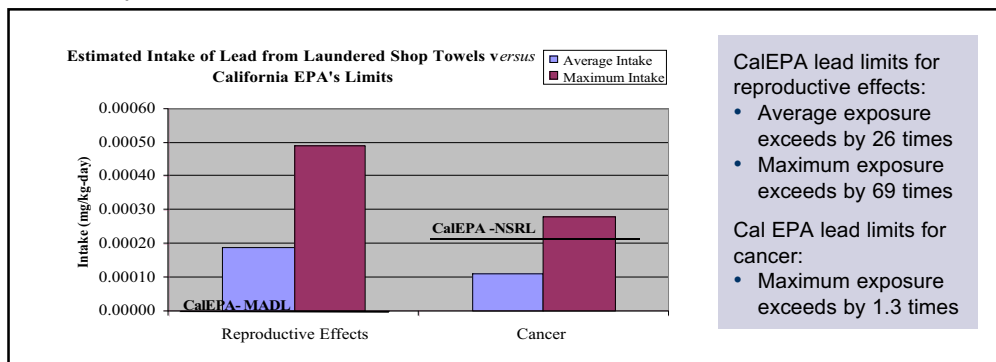
The bar chart compares the estimated lead exposure levels to CalEPA's Proposition 65 levels for reproductive effects (called Maximum Allowable Daily Levels, or MADLs) and cancer (called No Significant Risk Levels, or NSRLs).

These estimates are based on an assumed use of only 2.5 laundered shop towels per day per individual. If exposure assumptions are kept the same except that individuals use 10 laundered shop towels per day, the following exceedances could occur:

- The maximum intake for antimony could exceed USEPA's oral reference dose (RfD) for noncancer effects
- The maximum intake for cadmium could exceed ATSDR's oral Minimal Risk Level (MRL) for noncancer effects; the average intake and the maximum intake for cadmium could exceed CalEPA's MADL for reproductive effects
- Both the average intake and the maximum intake for lead could exceed CalEPA's NSRL for cancer

The overall conclusions of this analysis are:

- Laundered shop towels contain a variety of heavy metals
- Metals on shop towels can get onto hands and then inadvertently get into the mouth and be swallowed
- The amount of lead that someone might accidentally ingest from the laundered shop towels could exceed a CalEPA Proposition 65 limit (based on using 2.5 towels per day)
- If the number of towels used increases to 10 per day, exceedances of Prop 65 limits, USEPA toxicity criteria, or ATSDR toxicity criteria could occur for antimony, cadmium, and lead



CalEPA lead limits for reproductive effects:

- Average exposure exceeds by 26 times
- Maximum exposure exceeds by 69 times

Cal EPA lead limits for cancer:

- Maximum exposure exceeds by 1.3 times

The bases for the conclusions summarized here are presented in their entirety in the companion report "Evaluation of Potential Exposure to Metals in Laundered Shop Wipes," which is available in the International Nonwovens Journal (INJ) on the INDA website at http://www.inda.org/subscrip/inj03_4/p22-37-beyer.pdf. Use of different exposure assumptions, or comparison to different laundered shop wipes (which may contain different concentrations of metals), could affect the conclusions.