

TRSA Position Paper
November 30, 2011

Attacks on Laundered Shop Towels: Why Now? What's Next?

Findings of research funded by disposable industrial wiper marketers released in July 2011 (essentially the same study produced in 2003 and discredited) theorized that clean reusable shop towels expose their users to trace metals deposited on these textiles when laundered. This analysis found concentrations of such chemicals bound to these towels' fibers at unacceptable levels for human ingestion. But the researchers *did not determine* that towel use loosens the bonds between the chemicals and fibers and *did not test* human contact with these chemicals, thereby *failing to prove* users ingest them.

Yet the researchers still estimated transfer of these from towel-to-hand and hand-to-mouth. Although they had no evidence of *how* these are freed when clean shop towels are used for their intended purpose, the researchers still stated *how much* could be freed, fabricating high estimates of susceptibility based on alleged exposure **for 40 years of working with these goods 5 days a week for 49 weeks per year**. They deflected attention away from their lack of primary data by using references to ingestion of:

- Pesticides from carpets to saliva-moistened hands
- Pesticides from vinyl sheet flooring to dry and wetted palms
- Arsenic associated with treated wood on playground equipment
- Chloropyrifos residues from residential surfaces
- Flame-retardant chemicals in upholstered furniture

The report cited references that appeared relevant, but in fact were meaningless to the situation, because of the lack of proof that chemical residue on towels migrates to their users' hands or lips. The researchers cited:

- An epidemiological study of how children and adults ingest soils
- Transfer factor data for dermal exposure to particulate matter
- A toxicity review of chromium
- Measures of oral and pulmonary exposure to lead by children living near a primary lead smelter

In the days following the release of the research report TRSA provided textile services operators with talking points to counter claims the study documented actual risks. Media serving safety and environmental professionals reported TRSA's statements on the findings. The research's credibility had been successfully challenged as in 2003. No human health study has emerged to prove that that anyone is at risk or has ever been sickened by clean shop towels.

In addition, TRSA has found no indication that the research has been published in a journal and peer-reviewed accordingly. The research report did not detail any testing standards the researchers followed (such as ISO) although separate documentation of such practices may exist. For the sake of argument, TRSA will assume the findings of chemical concentrations on the tested towels are correct.

Disposables Legally Classified as Solid, Hazardous Waste

The study is among the paper wiper industry's attempts to 1) overcome the product's reputation as wasteful because it needs to be disposed and 2) position disposables as worthy of exclusion from hazardous waste regulations. TRSA knows of no jurisdiction that classifies reusable towels as hazardous. This is a competitive advantage for cloth shop towels, as industrial users with hazardous soils who choose disposables must incur compliance cost with such regulations, including disposal in an appropriate landfill.

This distinction occurs because the Code of Federal Regulations [40 CFR 261.3 (A)] stipulates that a waste must be "solid" to be "hazardous." Cloth shop towels are not solid waste because they are *reused*. Until they have reached the end of their useful life, they pass the 4-criteria test under 40 CFR 261.2 (A) that determines an item is not solid waste:

- Not a solid, semi-solid, liquid, or contained gaseous material discarded or served its intended purpose
- Not abandoned
- Not recycled by being placed on the ground (and that is not the normal use), burned for energy recovery, reclaimed or accumulated more than one year.
- Not inherently waste-like (e.g., dioxin wastes)

In contrast, a disposed single-use towel fails this test and is considered hazardous when it contains soils categorized in 40 CFR 261.3 (A) and detailed in 261.2 (C) and 261.3 (D). Among the *listed* soils:

- F-listed wastes from common industrial processes not specific to one type of industry, including many spent (or used) solvents.
- K-listed wastes from specific industrial processes including wood preservation, organic chemical production and pesticide manufacturing.
- P- and U-listed commercial chemical products disposed of unused; spilled while in use; or intentionally discarded if out of specification.

Furthermore, a waste can be *characterized* as hazardous by exhibiting one of these four traits:

- Ignitability
- Corrosivity
- Reactivity
- Toxicity

Laundries are not hazardous waste disposal operations because 40 CFR 261.3 (A) excludes point-source industrial wastewater discharges subject to regulation under section 402 of the Clean Water Act. Thus, the proper disposal of shop towel soils is assured by industrial laundries' compliance with their discharge permits from their local publicly owned treatment works. State regulations (interpretations of federal law) govern laundries' safe handling of soiled textiles en route to their facilities from customers' locations. The federal EPA has proposed a single national standard for such handling that would codify TRSA's best management practices for this process.

EPA Examines Environmental Impacts of Industrial Wiping Alternatives

Disposable wiper marketers have taken advantage of the same federal EPA rulemaking to prompt the agency's proposal to free their products from hazardous waste disposal rules if each towel contains 5 grams of solvent or less. They have also pointed out that some laundry wastewater treatment generates filtrate that must be disposed as hazardous waste. These are their greatest successes in positioning their product as comparably "green" to reusables, with the recent research and videos as their latest effort in a long line of unsuccessful efforts to do so.

For example, they were credited in the mid-1990s for prompting EPA to conduct an assessment of the environmental impacts and usage trends of reusable and disposable wipers in the printing and automotive industries. The 1997 report of this study characterized the exercise as a "streamlined" life cycle assessment (LCA) using techniques "employed to reduce the time and resources required to analyze potential environmental impacts." These product categories were evaluated:

- Woven (reusable: cotton/polyester blend)
- Nonwoven (disposable: wood pulp/polyester and 100% polypropylene)
- Paper (disposable: wood pulp with binders)
- Rags (disposable: cotton/polyester)

LCA methodology considers the life of any product as advancing through four stages or "subsystems:" raw materials acquisition, manufacturing, use and post-use. EPA admitted in this case that it only briefly covered the first two stages while focusing on the latter two. For each stage (subsystem), an LCA examines inputs (raw materials, energy, water) and emissions (air, liquid, solid, co-products).

Among the conclusions from the study:

- Total water requirements were similar for woven and paper towels and were about 10 times greater than for nonwoven towels.
- Woven towels have the lowest relative energy requirement due to their capacity for reuse.
- Woven, nonwoven and paper towel wastes generated from use and post-use were similar in total weight. However, the woven towel waste is primarily sludge, while nonwoven and paper towel waste consists of towels and contaminants. Sludge from woven towel washing contains an average of 22% water.

Because such LCAs do not assign a green "score" to a product or opine on whether one given stage, input or emission is more important than another, these results proved most unsatisfying to disposables marketers.

Anticipating Future Attacks on Reusable Shop Towels

To date, disposable wiper marketers' efforts to smear shop towels through the new research appear to be focusing on business media rather than attempting to sway the public at large through consumer outlets, although the online *Huffington Post* "broke" the story of the new research. Advertising and PR campaigns appear to be aimed at

publications for trades and professionals such as *American Printer* and *Sanitary Maintenance*. Earlier this year, any attempt to read an article in the online *EHS Today* was greeted with a “sponsored introduction” (pop-up ad) from the campaign.

Paper manufacturers would likely view paying the high cost of advertising in consumer media to promote disposable industrial wipers as an unwise investment. But they frequently buy ads in such media for consumer products; it would not be surprising if they used such leverage to attempt to influence coverage of the shop towel issue.

If industry sales are the best measure of promotional capability, disposables have a lopsided advantage. Paper towels are produced by two industries: sanitary paper product manufacturing (which makes these from purchased paper) and paper mills (produces them from raw materials). The former has annual sales of \$10.5 billion and the latter, \$47 billion, totaling nearly \$60 billion. The entire textile services industry sells about \$16 billion, with most shop towels coming from the industrial laundry segment at about \$7 billion.

What Will TRSA Do Now?

The TRSA Marketing and PR Committee has endorsed spending association funds on life-cycle assessment of textile services industry products. Shop towels would likely be one of these. Such research would prove the sustainability of the industry’s products and processes.

To prove that shop towels do not shed deposited chemicals, research is scheduled this spring. Such data will support TRSA’s cause but is not expected to be widely perceived as credible, given that it will be known that the research has been funded by the industry, in the same manner as disposable wiper marketers’ recent findings are viewed as self-serving to their business.