



State of Utah

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DIVISION OF WATER QUALITY  
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Director

**MEMORANDUM**

TO: House Natural Resources, Agriculture, and Environment Standing Committee

FROM: Walter L. Baker, P.E.  
Director

DATE: January 31, 2011

SUBJECT: Fact Sheet Re: HB0246 Repeal of Phosphorus Limit in Dishwashing Detergents

- 18 states (including Utah) have laws limiting phosphate concentrations in automatic dishwashing detergent
- The rollout of the national initiative was a result of the detergent industry and state lawmakers
- While removing phosphates in laundry detergent was effected by 1993, it took longer for manufacturers to develop low-phosphate dishwashing detergent. Effective low-phosphate products are now available
- Phosphates help remove food and grease, reduce spotting and filming, control water hardness and suspend food particles so they don't redeposit on dishes
- Phosphates spur the growth of algae and result in undesirable water quality impacts including oxygen reduction in rivers and streams and odor and poor taste in drinking water
- It is inefficient for the detergent industry to provide automatic dishwashing detergent products which contain phosphates as well as detergent that is phosphate-free. Detergent manufacturers are removing phosphates from their detergent products
- Minnesota conducted studies on municipal sources of phosphorus and estimated that about 15% of the total phosphorus load to wastewater treatment plants was due to automatic dishwater detergents
- Hardly any wastewater treatment plants (WWTP) in Utah is designed to remove phosphorus. Typically only 40% of influent phosphorus, or less, is removed by standard wastewater treatment plants
- If the industry was to revert to the prior formula for dishwashing detergent, i.e., 8.7% phosphorus, it is estimated that 364,000 pounds per year of phosphorus would be added to Utah's waters. The cost of removing that amount of phosphorus would be approximately \$11.5 million/year
- See the Division of Water Quality's web page on this issue:  
<http://www.waterquality.utah.gov/phosphorus/index.htm>

**Q:** What's causing dishes to have a filmy residue due to using low-phosphate detergents?

**A:** Phosphates serve as “builders” and help hold minerals in solution that contribute to water hardness (mostly calcium and magnesium). This prevents the minerals from combining with food soils so that neither the minerals nor the mineral/food soil combination leave insoluble spots or film on dishes

**Q:** What's to be done to prevent the filmy residue on dishes when low-phosphate dishwashing detergent is used?

**A:** Here are some suggestions:

1. Use an effective low-phosphate dishwashing detergent. The September 2010 issue of *Consumer Reports* identifies some excellent and effective brands, including Finish Quantum (30 cents per load); Finish Powerball Tablets (22 cents per load); Cascade Complete All in 1 (28 cents per load); and Cascade with Dawn ActionPacs (23 cents per load)
2. Use a rinse agent that allows water to sheet off dishes rather than to dry in droplets
3. Use “LemiShine” as an additive to combat hard water scaling
4. Add 1 tablespoon of vinegar to each load

**Q:** We've heard about nutrient problems in the Chesapeake Bay and the Gulf of Mexico, but are nutrients really a problem in Utah?

**A:** 31% of Utah's streams and 33% of our lakes and reservoirs are impaired for various reasons. Nutrient pollution is the largest single source of impairment of our streams (18%) and our lakes/reservoirs (34%)

**Q:** How does phosphorus cause water pollution?

**A:** Phosphorus stimulates the growth of algae in our waters. When the algae die-off and decay, oxygen is consumed. During photosynthesis, which occurs during the day, oxygen is produced by aquatic plants (including algae). During the night, the process of respiration occurs where aquatic plants (including algae) draw oxygen from water.. When nutrients spur the growth of aquatic vegetation, waters can become super-saturated with oxygen during the day because of the extensive amount of photosynthesis occurring. Conversely, respiration from the same plants during the night can cause a massive oxygen deficiency

**Q:** Are we seeing any improvements in our waters as a result of phosphates being removed from dishwashing detergent?

**A:** Sampling at the Central Valley Water Reclamation Facility, which is the largest wastewater treatment plant in the state and serves 46% of the wastewater flows in the Salt Lake Valley, indicates that phosphorus levels in both the wastewater influent and effluent have noticeably decreased since the phosphate ban has been in place. More data is necessary to determine the extent of the decrease.