



## Evaluation of Potential Environmental Impact of Flogos®

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### Introduction:

A qualitative evaluation of the potential health and environmental impact of Flogos® was requested and investigated. Possible eco-toxicity involving Flogos® product was evaluated in the product's concentrated and diluted forms. Both forms were investigated due to marketplace application of Flogos® requiring extremely dilute solutions. The manufacturer's recommended dilutions were prepared and evaluated with strict adherence to those recommendations.

A qualitative evaluation of current federal health and safety regulation, as pertaining to primary reagents incorporated in the concentrated Flogos® product, was employed to ascertain the level of, if any, adverse environmental exposures and/or impacts.

The product is sold as a means of making flying logos (Flogos®) for advertising and promotions for private and public industry. These logos are generated outside a great majority of the time, but could potentially be generated indoors in places like sports arenas, domes, etc., due to the non-existent toxicity, low concentration of reagents in the diluted form, and residue free decomposition.

### Experimental:

1. The concentrated product was diluted with water to manufacturer's recommendation for 24, 36, and 48 inch diameter Flogos® machines.
2. No current national or international federally regulated health and safety organization, as pertaining to primary reagents incorporated in concentrated and diluted solutions of Flogos®, identifies these reagents or their decomposition products as toxic or designates these reagents as suspected environmental hazards.
3. Volume/volume % (v/v %) measurements were employed to evaluate concentrated and diluted reagent solutions in different Flogos® machines, but weren't indicative of the concentration in air due to the large and immeasurable volume of area in which Flogos® may be generated.
4. The pH of the diluted solutions was in the 7.0-8.0 range.
5. No detectable residues were observed after impacts of Flogos® with objects.

### Results:

1. None of the reagents or decomposition products incorporated in the Flogos® concentrated or diluted forms are listed by the European List of Notified Chemical Substances, Resource Conservation and Recovery Act, Occupational Safety and Health Act, American Conference of Governmental Industrial Hygiene Association, or Environmental Protection Agency as hazardous or ecotoxic substances.

### Conclusion:

1. Due to the degree of Flogos® solution dilution, the concentration of reagents, the lack of toxicity of these reagents, and their biodegradability, it is my opinion as a certified Hazardous Materials Operations and Management Technician and certified Occupational Safety and Health technician, that Flogos® are environmentally and ecologically safe.

