

Toxicity Report on Duo Max

Prepared for Duo Tech Limited

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AUTHORS

Harlan Laboratories Ltd

EXECUTIVE SUMMARY REPORT ON THE TOXICITY EVALUATION OF DUOMAX

1 BACKGROUND

DuoMax is a comprehensive range of infection control products designed to clean and disinfect in any environment where good infection control is a necessity. DuoMax is an ideal tool in the fight against infection and can be used to clean and decontaminate on a wide spectrum of surfaces in an even wider range of sectors.

Duo Tech Limited felt it imperative to provide independent scientific opinion of DuoMax being non- hazardous and safe to use. Hence, Harlan Laboratories Ltd were commissioned to evaluate:

- Physico-Chemical properties
- Mammalian Toxicity
- Environmental Toxicity
- Overall Classification

2 AIMS

2.1 Aim of the paper

The aim of this paper is to provide a summary of the assessment carried out on behalf of Duo Tech Limited by Harlan Laboratories Ltd in January 2010.

2.2 Aim of the assessment

The aim of the assessment is to evaluate the toxicity of the product formulation (named DuoMax) as a biocidal product in general and as a detergent/disinfectant and, in particular, to give an expert opinion regarding its safety.

3 METHODOLOGY, CONDUCT AND RESULTS

3.1 Description of DuoMax

DuoMax is a comprehensive range of infection control products designed to clean and disinfect in any environment where good infection control is a necessity.

There is no information relating to DuoMax available within the public domain.

This highly effective alcohol free groundbreaking technology works by piercing the outer membrane of bacteria, spores, fungi or yeasts, destroying the DNA and RNA. This will eliminate the risk of such pathogens developing resistance to the product. By removing the protein, DuoMax not only kills but will also remove all odour.

The DuoMax range is proven antibacterial, achieving a 6 log reduction (99.9999%) against tested bacteria including MRSA, *E. Coli* and *Pseudomonas*. DuoMax is also proven antiviral, in addition to being highly effective in the fight against *C. Difficile* spores.

DuoMax is synergistic blend containing a core biocide, surfactants, and complexing agents and alkalis. The biocidal active ingredient is a quaternary ammonium compound and the product also contains EDTA (tetrasodium salt), various surfactants and deionised water as co-formulants. DuoMax can be supplied as either a concentrate or as a dilution with water for use as a commercial detergent/disinfectant (20:1 or 40:1 dilutions are the most common).

3.2 Conduct and findings of the assessment

The conduct of the assessment, the searches completed and the findings are detailed in the Harlan Laboratories Ltd Report at Enclosure 1, but in broad terms the searches focussed on the following areas for each of the constituents:

- a. Physico-chemical properties
- b. Mammalian toxicity including aspects such as:
 - (i) Oral, dermal and eye exposure
 - (ii) Inhalation
 - (iii) Carcinogenicity and mutagenicity
 - (iv) Reproduction Studies
- c. Environmental toxicity including:

- (i) Photodegradation with both indirect and direct photolysis
- (ii) Stability in soil
- (iii) Transport between environmental compartments including adsorption and volatility with soil, water and air
- (iv) Biodegradation
- (v) Bioaccumulation
- (vi) Acute/Prolonged toxicity to fish
- (vii) Acute toxicity to aquatic invertebrates
- (viii) Toxicity to aquatic plants such as algae
- (ix) Toxicity to micro organisms e.g. bacteria
- (x) Chronic toxicity to aquatic invertebrates
- (xi) Toxicity to soil dwelling organisms

The findings of the report are detailed in the Harlan Laboratories Ltd report at Enclosure 1 where they provide for each component of DuoMax:

- a. Toxicity classification
- b. Environmental classification
- c. Overall classification

4 CONCLUSIONS

The detailed conclusions are presented in the Harlan Laboratories Ltd report, but to summarise, it is concluded that:

1. The Harlan Laboratories Ltd report provides an overview of the mammalian toxicology and ecotoxicology of the chemical components that are used in the DuoMax formulation.
2. DuoMax concentrate is classified as corrosive, C: R34 (causes burns), based on the concentration of the biocidal active used in the formulation.
3. The 20:1 and 40:1 dilutions of DuoMax are not classified and do not pose any immediate danger to human health, animal or the environment.