

Poster Abstracts

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DIPHOTERINE® EYE/SKIN CHEMICAL SPLASH DECONTAMINATION SOLUTION: A REVIEW OF SAFETY AND EFFICACY DATA ACCUMULATED OVER THE PAST 14 YEARS

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Approximately 2-10% of all burns are chemical burns, due to the action of corrosive or irritant substances on skin or eyes. Safety and efficacy of Diphoterine®, an amphoteric, polyvalent, chelating eye/skin decontamination solution were published in the early 2000s in French and English. Since that time, *in vitro*, *in vivo* and clinical studies have been published or presented which support this solution as being safe and superior to tap water, normal saline, or buffered solutions for chemical splash rinsing. Diphoterine® has 6 binding sites (for acids, bases, oxidizers, reducing substances alkylating agents, solvents, etc.), is non-toxic, not significantly absorbed through intact or injured tissue surfaces, non-sensitizing, and has been shown to be more efficacious than water rinsing.

According to data courtesy of Alcoa, Inc. and the United Steel Workers Union, where Diphoterine is available (Europe, Jamaica, Latin America, Western Australia), chemical burn severity rates vary from 0.00-0.16, whereas in the USA where Diphoterine is not available, the rate is 0.72. On the surface and from the interior of exposed tissues, studies have shown: efficacy against nearly all types of irritant/corrosive chemicals; non-toxic, non-irritating, non-sensitizing; clinical interest for both emergent and delayed rinsing. In animals, it has polyvalence and superior efficacy as compared to alternative buffered eyewash solutions with which deleterious effects including corneal calcifications have been reported. In rat studies of concentrated hydrochloric acid dermal exposure, it was more efficacious than normal saline for arresting the acid's action on the skin and markers of pain and inflammation were significantly reduced.

Similar results were found in rabbits exposed to sulfuric acid and sodium hydroxide. With chemical splashes, immediate workplace utilization allows optimal decontamination. In comparison with water or buffered solutions, Diphoterine has shown a lack of sequelae, decreased need for secondary care, and lesser or absent lost worktime. Delayed utilization by healthcare professionals has also been efficacious. After the burning action is arrested, further treatment can be done under optimal conditions. As Diphoterine rapidly normalizes corneal or skin pH to the tolerable physiological range (5.5-9.0), pain is decreased, re-epithelialization time improved, and complication risks decreased.