



Evaluation of the male reproductive toxicity of gallium arsenide

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ABSTRACT

Gallium arsenide is an important semiconductor material marketed in the shape of wafers and thus is not hazardous to the end user. Exposure to GaAs particles may, however, occur during manufacture and processing. Potential hazards require evaluation. In 14-week inhalation studies with small GaAs particles, testicular effects have been reported in rats and mice. These effects occurred only in animals whose lungs showed marked inflammation and also had hematologic changes indicating anemia and hemolysis. The time- and concentration-dependent progressive nature of the lung and blood effects together with bio-availability data on gallium and arsenic lead us to conclude that the testicular/sperm effects are secondary to hypoxemia resulting from lung damage rather than due to a direct chemical effect of gallium or arsenide. Conditions leading to such primary effects are not expected to occur in humans at production and processing sites. This has to be taken into consideration for any classification decision for reproductive toxicity; especially a category 1 according to the EU CLP system is not warranted.

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1. Introduction

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