28-day Repeated Dose Toxicity Study of Nitrous oxide in F344/DuCrj Rats

(Received November 10, 2005)
(Accepted January 30, 2006)

Norio Imai a), Toshio Ichihara a), Akihiro Hagiwara a), Seiko Tamano a),
Yuriko Imayoshi b), Hisakatsu Iwabuchi b), Yukio Suzuki b), Mikio Nakamura b)

a) DIMS Institute of Medical Science, Inc.
b) San-Ei Gen F.F.I., Inc.

Summary

The present report concerns results of a 28-day repeated oral dose toxicity study of nitrous oxide, which is used as a food additive, especially as an aerosol spray propellant. Whipped cream product containing nitrous oxide was used in the experiment because nitrogen oxides are gaseous. Whipped cream containing nitrous oxide was administered to F344 rats (6 rats/group both sexes) by gavage at 0, 2.5, 5.0 and 10 g/kg/day (0, 16.8, 33.6 and 67.1 mg/kg/day as nitrous oxide).

The obtained results indicate that whipped cream containing nitrous oxide at 10 g/kg/day (67.1 mg/kg/day nitrous oxide) causes no adverse effects on any parameters examined. Based on these findings, the no-observed adverse effect level (NOAEL) of nitrous oxide was more than 67.1 mg/kg in both sexes.