

In mammals, methanol is readily absorbed following ingestion, inhalation and dermal exposure (COT, 2011). Methanol can readily enter the total body water and has a volume of distribution of 0.6-0.7 l/kg bw. Methanol is subject to a significant first pass metabolism. The overall metabolism of methanol proceeds by stepwise oxidation via formaldehyde to formate and then to carbon dioxide. The metabolism of formaldehyde is very efficient. Even after intravenous infusion, it was difficult to detect formaldehyde in blood, in which formaldehyde has been reported to display a half-life of about 1 minute (McMartin et al., 1979; Tephly and McMartin, 1984). The oxidation of formate to carbon dioxide varies between species, the rate of formate elimination in humans and non-human primates being half of that in rats (Kavet and Nauss, 1990). In rodents, formate is converted to carbon dioxide through a folate-dependent enzyme system and a catalase-dependent pathway (Dikalova et al., 2001) whereas in humans metabolism occurs exclusively through the folate-dependent pathway (Hanzlik et al., 2005). Studies in humans have shown that approximately 80 % of an oral [^{14}C]formate dose (administered as a single dose of 3.9 g calcium formate) is exhaled as $^{14}\text{CO}_2$, 2-7 % excreted in urine and approximately 10 % is metabolically incorporated (Hanzlik et al., 2005).