PATTERN OF INHALATION EXPOSURE:
BLOOD LEVELS AND ACUTE
SUBNARCOTIC EFFECTS OF TOluene
AND ACETONE IN RATS

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SUMMARY
Solvent blood concentrations and subnarcotic effects (inhibition of electrically evoked seizures) were measured in rats exposed to constant or fluctuating air concentrations of toluene or acetone. A 4 hour exposure of resting rats to toluene at an air concentration of 1 and 2 mg/l, or to acetone at 4 and 10 mg/l, led to blood levels of 6.7 and 12.8 mg/l of toluene, or 183 and 520 mg/l of acetone: seizure inhibition amounted to 18 % and 45 %, or 10 % and 50 %, respectively. Blood level and effect attained 1/2 of the final values after 40 min and 60 min of exposure to 2 mg/l toluene, respectively, and dropped to 1/2 70 min and 90 min after exposure cessation: respective values for acetone: 10 mg/l were 80 and 120 min, and more than 4 hours. A steep rise and a rapid drop was characteristic also for the course of blood level and effect during an exposure to fluctuating concentrations of toluene: ten minute fivefold jump in the air concentration induced a shortlasting seizure inhibition by more than 90 %; the curves for acetone were flat.

Key words: solvents, toluene, acetone, inhalation exposure, exposure pattern, fluctuating air concentrations, blood level, subnarcotic effect

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