

In this study motorcycle helmets are tested with regard to CO₂ retention to determine whether the helmets meet the requirements concerning CO₂ concentration stipulated by the National Swedish Board of Occupational Safety and Health. The hygienic limit value for CO₂ set by the board is 0.5% for industrial premises, and 1% when exposure is limited to 15 minutes. The study shows that the CO₂ concentration inside full-face motorcycle helmets is too high in many true traffic situations. It is recommended that: (1) The visor should be so designed that it can be opened easily as soon as the driver stops, e.g., at a red light signal. (2) A ventilation opening should be tested on different parts of the helmet to find the best possible ventilation with the least possible draught and with maintenance of an acceptable sound level. (3) The results of the investigation show that the standards of approval for helmets should be completed with a standard for maximum CO₂ concentration inside the helmets. (4) Moped riders should be recommended to use either open-face helmets or full-face helmets with the visor open, because the ventilation of most full-face helmets with the visor closed is dissatisfactory at low speeds. (5) If a person is injured and loses consciousness, the visor should be easy to open, as high concentration of CO₂ in an unconscious person is extremely dangerous to the brain functions.