PENTHROX 99.9%, 3 ml inhalation vapour, liquid: Please refer to the Summary of Product Characteristics (SmPC) before prescribing. Abbreviated Prescribing Information: Presentation: Each bottle of PENTHROX contains 3 ml of methoxyflurane 99.9%, a colourless, volatile liquid, with a characteristic fruity odour. Each PENTHROX combination pack consists of one bottle of 3 ml PENTHROX, one PENTHROX Inhaler and one Activated Carbon (AC) chamber.

Indications: Emergency relief of moderate to severe pain in conscious adult patients with trauma and associated pain. Dosage and administration: PENTHROX should be self-administered under supervision of a person trained in its administration, using the hand held PENTHROX Inhaler. It is inhaled through the custom-built PENTHROX inhaler. Adults: One bottle of 3 ml PENTHROX as a single dose, administered using the device provided. A second bottle should only be used where needed. The frequency at which PENTHROX can be safely used is not established. The following administration schedule is recommended: no more than 6 ml per 24 hours. Administration on consecutive days, the total dose to a patient in a week should not exceed 15 ml. Onset of pain relief is rapid and occurs after 6-10 inhalations. Patients are able to titrate the amount of PENTHROX inhaled and should be instructed to inhale intermittently to achieve adequate analgesia. Continuous inhalation of a bottle containing 3 ml provides analgesic relief for up to 25-30 minutes; intermittent inhalation may provide longer analgesic relief. Patients should be advised to use the lowest possible dose to achieve pain relief. Renal impairment: Methoxyflurane may cause renal failure if the recommended dose is exceeded. Caution should be exercised for patients diagnosed with clinical conditions that would pre-dispose to renal injury. Hepatic impairment: Cautious clinical judgement should be exercised when patients with hepatic impairment are administered with inhaled anaesthetics. Paediatric population: PENTHROX should not be used in children and adolescents under 18 years. For detailed information on the method of administration refer to the SmPC. Contraindications: Use as an anaesthetic agent. Hypersensitivity to methoxyflurane, any fluorinated anaesthetic or to any of the excipients. Patients who are known to be genetically susceptible to malignant hyperthermia. Patients or patients with a known family history of severe adverse reactions after being administered with inhaled anaesthetics. Patients who have a history of showing signs of liver damage after previous methoxyflurane use or halogenated hydrocarbon anaesthesia. Clinically significant renal impairment. Altered level of consciousness due to any cause including head injury, drug and alcohol related. Clinically evident respiratory depression. Warnings and Precautions: To ensure the safe use of PENTHROX as an analgesic the lowest effective dose to control pain should be used and it should be used with caution in the elderly or other patients with known risk factors for renal disease, and in patients diagnosed with clinical conditions which may pre-dispose to renal injury. Methoxyflurane causes significant nephrotoxicity at high doses. Nephrotoxicity is thought to be associated with inorganic fluoride ions, a metabolic breakdown product. When administered as instructed for the analgesic indication, a single dose of 3 ml methoxyflurane produces serum levels of inorganic fluoride ions below 10 micromol/l. In the past when used as an anaesthetic agent, methoxyflurane at high doses caused significant hypocalcaemia, which was dose-related; serum levels of inorganic fluoride ions greater than 40 micromol/l. Nephrotoxicity is also related to the rate of metabolism. Factors that increase the rate of metabolism such as drugs that induce hepatic enzymes can increase the risk of toxicity with methoxyflurane as well as sub-groups of people with genetic variations that may result in fast metabolism status. Methoxyflurane is metabolised in the liver, therefore increased exposures in patients with hepatic impairment can cause toxicity. PENTHROX should be used with care in patients with underlying hepatic conditions or with risks for hepatic dysfunction. Previous exposure to halogenated hydrocarbon anaesthetics (including methoxyflurane when used as an anaesthetic agent), especially if the interval is less than 3 months, may increase the potential for hepatic injury. Potential effects on blood pressure and heart rate are known class-effects of high-dose methoxyflurane used in anaesthesia and other anaesthetics. Caution is required with use in the elderly due to possible reduction in blood pressure. Potential CNS effects such as sedation, euphoria, amnesia, ability to concentrate, altered sensorimotor co-ordination and change in mood are known class-effects. The possibility of these effects may occur as a risk factor for potential alcohol related accidents. These reports are very rare in post-marketing use. PENTHROX is not appropriate for providing relief of break-through pain/exacerbations in chronic pain conditions or for the relief of trauma related pain in closely repeated episodes for the same patient. PENTHROX contains the excipient, butylated hydroxytoluene (E321) which may cause local skin reactions (e.g. contact sensitivity) and conjunctival irritation. The inhalation of inorganic fluoride can produce respiratory irritation, cough, bronchospasm and may cause mucus membrane irritation and erythema. It is advisable to reduce occupational exposure to methoxyflurane, the PENTHROX Inhaler should always be used with the AC Chamber which adsorbs exhaled methoxyflurane. Multiple use of PENTHROX Inhaler without the AC Chamber creates additional risk. Elevation of liver enzymes, blood urea nitrogen and serum uric acid have been reported in exposed maternity workers when methoxyflurane was used in the inhaler. Nephrotoxicity has only been associated with methoxyflurane when used in large doses over prolonged periods during general anaesthesia. Postmarked reaction and non-serious reactions are CNS type reactions such as dizziness and somnolence and are generally easily reversible. Serious dose-related nephrotoxicity has only been associated with methoxyflurane when used in large doses over prolonged periods during general anaesthesia. The following adverse drug reactions have either been observed in PENTHROX clinical trials in anaesthesia, with analgesic use of methoxyflurane following post-marketing experience or are linked to methoxyflurane use in analgesia found in post-marketing experience and in scientific literature (refer to the SmPC for further details): Very Common (≥1/10): dizziness; common (1/100 to <1/10): Euphoric mood, amnesia, dysarthria, dysgeusia, headache, somnolence, hypotension, cough, dry mouth, nausea, feeling drunk; uncommon (1/1,000 to <1/100): increased appetite, anxiety, depression, inappropriate affect, paraesthesia, peripheral sensory neuropathy, diplopia, flushing, oral discomfort, hyperhidrosis, fatigue, feeling abnormal, chills, feeling of relaxation; not known: affect lability, agitation, confusional state, dissociation, restlessness, altered state of consciousness, nystagmus, visual blurring, blood pressure fluctuation, choking, hypoxia, vomiting, hepatic failure, hepatitis, jaundice, liver injury, renal failure, hepatic enzyme increased, blood urea increased, blood uric acid increased, blood creatinine increased. Overdose: Refer to SmPC. Legal Category: POM. NHS Price: £17.89. Marketing Authorisation Holder: Medical Developments UK Limited c/o Price Bailey LLP. Causeway House, 1 Dane Street, Bishop’s Stortford, Herts, CM23 3BT, United Kingdom. MA Number: PL 42467/0001. Full prescribing information available from: Galen Limited, Sage Industrial Estate, Craigavon, BT63 5UA, United Kingdom. Date of Preparation: February 2019. Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Galen Limited on 01327 8383 4974 or contact the customer services option, or e-mail customer.services@galen-pharma.com. Medical information enquiries should also be directed to Galen Limited.