

Recommended Methods of Euthanasia: *Hamsters*

| Species | Method | Description |
|----------|---|---|
| Hamsters | Asphyxiation using CO2 followed by bilateral thoracotomy. | Using a non-precharged chamber, CO2 is dispensed from a commercial cylinder with fixed pressure regulator and inline restrictor controlling gas flow within 30%-70% of the chamber volume per minute to comply with 2020 AVMA Guidelines. CO2 flow will be maintained for > 60 seconds following respiratory arrest (which may take up to 5 minutes), followed by bilateral thoracotomy to assure euthanasia. <i>NOTE: Neonates < 7 days old should be euthanized by a physical method, such as sharp scissors.</i> |
| | Asphyxiation using CO2 followed by decapitation. | Using a non-precharged chamber, CO2 is dispensed from a commercial cylinder with fixed pressure regulator and inline restrictor controlling gas flow within 30%-70% of the chamber volume per minute to comply with 2020 AVMA Guidelines. CO2 flow will be maintained for > 60 seconds following respiratory arrest (which may take up to 5 minutes), followed by decapitation using (<i>indicate equipment used</i>) to assure euthanasia. <i>NOTE: Neonates < 7 days old should be euthanized by a physical method, such as sharp scissors.</i> |
| | Asphyxiation using CO2 followed by exsanguination. | Using a non-precharged chamber, CO2 is dispensed from a commercial cylinder with fixed pressure regulator and inline restrictor controlling gas flow within 30%-70% of the chamber volume per minute to comply with 2020 AVMA Guidelines. CO2 flow will be maintained for > 60 seconds following respiratory arrest (which may take up to 5 minutes), followed by rapid exsanguination via (<i>indicate method or vascular incision points</i>) to assure euthanasia. <i>NOTE: Neonates < 7 days old should be euthanized by a physical method, such as sharp scissors.</i> |
| | Asphyxiation using CO2 followed by major organ harvest. | Using a non-precharged chamber, CO2 is dispensed from a commercial cylinder with fixed pressure regulator and inline restrictor controlling gas flow within 30%-70% of the chamber volume per minute to comply with 2020 AVMA Guidelines. CO2 flow will be maintained for > 60 seconds following respiratory arrest (which may take up to 5 minutes), followed by rapid harvest of (<i>indicate organs / tissues</i>) to assure euthanasia. <i>NOTE: Neonates < 7 days old should be euthanized by a physical method, such as sharp scissors.</i> |
| | Inhalant anesthetic overdose followed by bilateral thoracotomy. | Using a precision vaporizer with induction chamber and waste gas scavenger, (<i>indicate the gas anesthetic</i>) will be administered slowly up to [<i>indicate: > 4.5 % (for Isoflurane) or > 6.5 % (for Sevoflurane)</i>] in oxygen and continued until respiratory arrest occurs for > 60 seconds. The chamber is flushed with oxygen only, the animal is removed and bilateral thoracotomy is performed to assure euthanasia. |
| | Inhalant anesthetic overdose followed by decapitation. | Using a precision vaporizer with induction chamber and waste gas scavenger, (<i>indicate the gas anesthetic</i>) will be administered slowly up to [<i>indicate: > 4.5 % (for Isoflurane) or > 6.5 % (for Sevoflurane)</i>] in oxygen and continued until respiratory arrest occurs for > 60 seconds. The chamber is flushed with oxygen only, the animal is removed and decapitated with (<i>indicate equipment used</i>) to assure euthanasia. |
| | Inhalant anesthetic overdose followed by exsanguination. | Using a precision vaporizer with induction chamber and waste gas scavenger, (<i>indicate the gas anesthetic</i>) will be administered slowly up to [<i>indicate: > 4.5 % (for Isoflurane) or > 6.5 % (for Sevoflurane)</i>] in oxygen and continued until respiratory arrest occurs for > 60 seconds. The chamber is flushed with oxygen only, the animal is removed and rapid exsanguination is performed by (<i>indicate method or vascular incision points</i>) to assure euthanasia. |

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| | Inhalant anesthetic overdose followed by major organ harvest. | Using a precision vaporizer with induction chamber and waste gas scavenger, (<i>indicate the gas anesthetic</i>) will be administered slowly up to [<i>indicate: > 4.5 % (for Isoflurane) or > 6.5 % (for Sevoflurane)</i>] in oxygen and continued until respiratory arrest occurs for > 60 seconds. The chamber is flushed with oxygen only, the animal is removed and rapid removal of (<i>indicate tissues / organs</i>) is performed to assure euthanasia. |
| | Inhalant anesthetic overdose (dessicator jar) followed by bilateral thoracotomy. | Using a dessicator jar in a chemical fume hood, the animal is placed on a perforated platform that prevents direct contact with the liquid anesthetic (<i>indicate the gas anesthetic</i>). The lid is replaced and the animal monitored until lack of respiration for > 60 seconds is observed. The animal is removed from the jar and bilateral thoracotomy is performed to assure euthanasia. |
| | Inhalant anesthetic overdose (via dessicator jar) followed by decapitation. | Using a dessicator jar in a chemical fume hood, the animal is placed on a perforated platform that prevents direct contact with the liquid anesthetic (<i>indicate the gas anesthetic</i>). The lid is replaced and the animal monitored until lack of respiration for > 60 seconds is observed. The animal is removed from the jar and decapitated with (<i>state equipment used</i>) to assure euthanasia. |
| | Inhalant anesthetic overdose (via dessicator jar) followed by exsanguination. | Using a dessicator jar in a chemical fume hood, the animal is placed on a perforated platform that prevents direct contact with the liquid anesthetic (<i>indicate the gas anesthetic</i>). The lid is replaced and the animal monitored until lack of respiration for > 60 seconds is observed. The animal is removed from the jar and exsanguination performed by (<i>indicate method or vascular incision points</i>) to assure euthanasia. |
| | Inhalant anesthetic overdose (via dessicator jar) followed by major organ harvest. | Using a dessicator jar in a chemical fume hood, the animal is placed on a perforated platform that prevents direct contact with the liquid anesthetic (<i>indicate the gas anesthetic</i>). The lid is replaced and the animal monitored until lack of respiration for > 60 seconds is observed. The animal is removed from the jar and (<i>state tissues / organs</i>) are harvested to assure euthanasia. |
| | Decapitation by Guillotine under sedation or anesthesia (Juveniles / Adults). | Post induction of anesthesia or sedation using (<i>indicate drug, dose in mg/kg, route & gauge needle</i>), the animal is placed head first into a decapicone and moved forward in the cone until secured. Holding the cone at the rear, the narrow end of the cone is inserted into a commercial guillotine to the level of the cervical vertebrae and the guillotine is activated. |
| | Decapitation by Guillotine without sedation or anesthesia (Juveniles / Adults). | Animals are placed head first into a decapicone and moved forward in the cone until secured. Holding the cone at the rear, the narrow end of the cone is inserted into a commercial guillotine to the level of the cervical vertebrae and the guillotine is activated. <i>NOTE: Scientific Justification is REQUIRED for the use of this method without sedation / anesthesia on juvenile or adult animals.</i> |
| | Decapitation by sharp scissors of neonates. | Neonates < 7 days of age: decapitation performed with sharp scissors without sedation or anesthesia. |
| | Vital perfusion under injectable anesthesia | (<i>Indicate drug, dose in mg/kg, route & gauge needle</i>) will be used to induce anesthesia. Surgical depth of anesthesia will be verified by lack of response to (<i>indicate stimulus</i>) stimulus. Vital perfusion will be performed using (<i>indicate name</i>) perfusate injected into the (<i>define point of vascular access or blood egress site</i>). Perfusion will be performed in a chemical fume hood if required by EHS. Perfusate waste will be disposed of by (<i>indicate method of disposal</i>). |
| | Injectable anesthetic overdose (Pentobarbital) | Administration of $\geq 100\text{mg/kg}$ of Pentobarbital (<i>state manufacturer</i>) intraperitoneal (IP) or intravascular (IV). Monitor animal until lack of heart beat is noted for ≥ 60 seconds prior to tissue harvest or carcass disposal. |