Virbac

Zoletil®

The Versatile Anaesthetic

Dosage Guidelines

This document was compiled in collaboration with vets and scientists who had experience with the use of Zoletil® in the field and were interested in anaesthesia research.

Their field information and knowledge helped a lot.

We would like to thank especially:
Maryvonne LECLERC-CASSAN (D.V.M.) and Jean-François HUGUES (D.V.M.) both pioneers of the use of Zoletil® in France, and also Dr FIENI, Dr BUECHER, Dr CHADUC for their great collaboration and every one who participated in the creation of this document.

This document is mainly evolutive and we welcome all new data and information which can help other anaesthetic users.

For this purpose or for complementary information, please write to:

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WARNING

The data mentioned in this document is either extracted from several publications and Virbac internal data or given by different researchers to Virbac.

The conditions of experiments or use of anaesthetics on wild fauna only enables us to give indicative posology and advice. Individual animal variations can occur. The users of Zoletil® must know that responsibilities of Virbac Laboratories will not be involved in case of misuse of complications during the use of Zoletil® in animals.

ZOLETIL® IS NOT PROVIDED FOR HUMAN USE

SUMMARY

The **Versatile Anaesthetic**...that induces **Peace of Mind**, **Convenience** and **Confidence**

Tiletamine

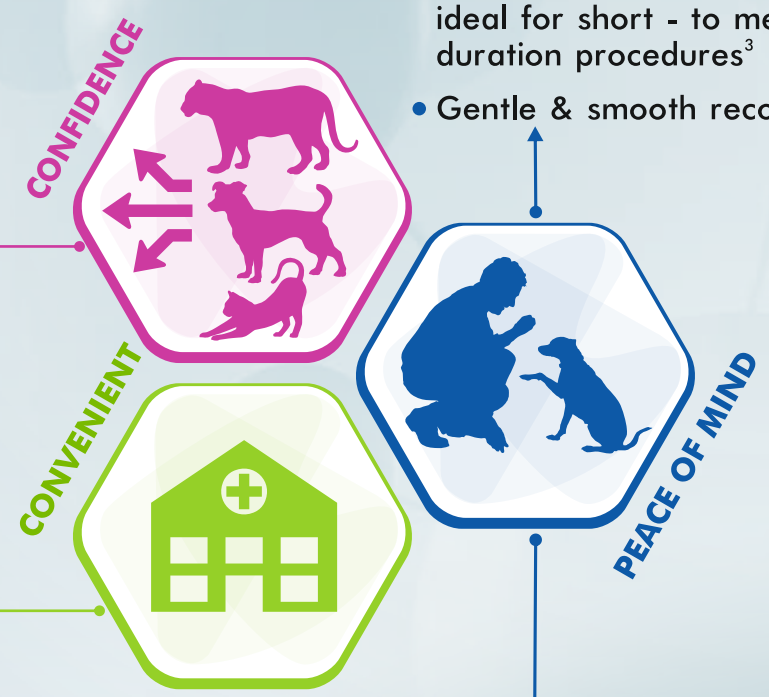
Dissociative anaesthetic providing good somatic analgesia for routine surgery[1]

Higher potency and duration of action compared to ketamine (the least potent of the dissociatives)

Zolazepam

Benzodiazepine tranquilizer known for profound muscle relaxation, amnesia, anti-convulsant and additional anxiolytic action[1,2]

Least likely amongst benzodiazepines, to cause CNS depression



- Dosage guidelines & scientific studies covering a plethora of **wildlife species**
- Widely used for **30 years** in small animal veterinary practice
  - Sole anaesthetic
  - Sedative
  - Induction anaesthetic

Effective

- Rapid onset of action <1 min IV / 3-6 min IM[1]
- Good myorelaxation & analgesia, ideal for short - to medium-duration procedures[3]
- Gentle & smooth recovery

- **Ready-to-use,** synergistic combination
- Multiple modes of administration : **IM or IV**[1]
- **Flexible,** dose-dependent effect: **20-60 mins duration**[1]
- No dependence on equipment

Safe

- **Wide safety margin & wide therapeutic window**[1]
- Ideal for **dogs, cats & wildlife species** (especially difficult-to-manage animals)[2]
- Limited side-effects
  - Less cardio-respiratory depression
  - No epileptic effect
  - Transient decrease in body temperature
  - Laryngeal, palpebral & pharyngeal reflexes are maintained

1. ZOLETIL [product summary]. Carros, France: Virbac S.A.; 2011.
2. Pablo LS, Bailey JE. Etomidate and telazol. Vet Clin North Am Small Anim Pract. 1999;29(3):779-792.
3. Fernandez Parra R, Zilberstein L. L'anesthésie fixe chez le chien et le chat. Pratique Vet 2015;50:503-506

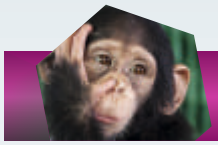
Proposed Zoletil only protocols

DOG

ZOLETIL™ 50				
	IM	IV	Approximate Duration	Remarks
Examination General examination, chemical restraint, which can include radiographs or MRIs	7-10 mg/kg BW	5 mg/kg BW	10-20 mins	Allows a good quality sedation for painless procedures
Minor surgery Castration, ovariectomy, ovariohysterectomy, draining abscesses or haematomas, dental cleaning	10-15 mg/kg BW	7.5 mg/kg BW	20-40 mins	Light surgical anaesthesia Premedication recommended with atropine, 15 minutes before administration to reduce salivation
Major surgery Orthopaedic surgeries, mastectomy, dental extraction	15-25 mg/kg BW	10 mg	35-60 mins	If a supplementary dose of Zoletil™ is required, this should not exceed the initial dose (1/3 – 1/2 of the initial dose). The total dose injected (initial and supplementary) should not exceed the maximum recommended dose of 26.4 mg/kg b.w., in dogs. Premedication recommended with atropine 15 minutes before administration to reduce salivation. For this type of surgery pain management should be considered in addition to the Zoletil™ based protocol
Induction		2-4 mg/kg/IV	10-20 mins	Induction agent prior to inhalant anaesthesia

CAT

ZOLETIL™ 50				
	IM	IV	Approximate Duration	Remarks
Examination General examination, which can include radiographs or MRIs, dental cleaning	10 mg/kg BW	5 mg/kg BW	20-40 mins	Light surgical anaesthesia Premedication recommended with atropine, 15 minutes before administration to reduce salivation
Surgery Ovariectomy, castration, ovariohysterectomy, wounds, dental extraction	15 mg/kg BW	7.5 mg/kg BW	35-60 mins	If a supplementary dose of Zoletil™ is necessary, this should not exceed the initial dose (1/3 – 1/2 of the initial dose). The total dose injected (initial and supplementary) should not exceed the maximum tolerated dose of 26.4 mg/kg b.w., in cats. Premedication recommended with atropine, 15 minutes before administration to reduce salivation. For this type of surgery pain management should be considered in addition to the Zoletil™ based protocol
Induction		2.5-3 mg/kg/SC	15 mins	Induction agent prior to inhalant or injectable anaesthesia



PRIMATES

The quality of anaesthesia and myorelaxation is excellent in primates. The main route of administration is intramuscular (IM), however the intra-peritoneal (IP) route is acceptable too and oral administration can be used in Chimpanzees. Induction time is 0.5 to 10 minutes and anaesthesia lasts for 4 to 120 minutes. Heart rate slows down slightly by 5 to 7%. Some salivation can occur (use atropine in these cases). In addition there is sometimes a delay in recovery, vomiting and respiratory depression.

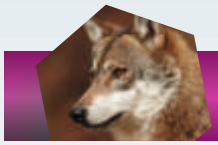
	Mean Dose
Alouatta viliosa (Mantled howler)	3.9 mg/kg IM
Aloutta caraya (Black howler monkey)	3.6 mg/kg IM
Ateles fusciceps (Black brown-headed spider monkey)	3.6 mg/kg IM
Ateles geoffroyi (Black-handed spider monkey)	2.4 mg/kg IM
Cacajao rubicundus (Red-faced ukari)	3.2 mg/kg IM
Cebus abiforns (White-fronted capuchin)	7.5 mg/kg IM
Cebus apella (Black-capped, brown of tufted capuchin)	4.4mg/kgIM
Cebus cupucinus (White-throated capuchin)	4.8 mg/kg IM
Cercocebus albigena (Gray-cheeked mangabey)	2.7 mg/kg IM
Cercocebus torquatus atys (Sooty mangabey)	4.1 mg/kg IM
Cercopithecus aethiops (Grivet, grass monkey)	8.8 mg/kg IM
Cercopithecus albogularis (Syke's monkey)	3.1 mg/kg IM
Cercopithecus diana (Diana monkey)	3.0 mg/kg IM
Cercopithecus mona (Mona monkey)	3.3 mg/kg IM
Cercopithecus neglectus (DeBrazza's monkey)	4.7 mg/kg IM
Cercopithecus nictitans (Spot-nosed monkey)	4.4 mg/kg IM
Cercopithecus nigroviridis (Allens swamp monkey)	2.2 mg/kg IM
Cercopithecus patas (Patas monkey)	3.0 mg/kg IM
Cercopithecus petaurista (Lesser spot-nosed guenon)	2.0 mg/kg IM
Cercopithecus pygerythrus (Vervet)	4.1 mg/kg IM
Cercopithecus sabaeus (Green monkey)	5.2 mg/kg IM
Colobus abyssinicus (Colobus monkey)	3.0 mg/kg IM
Cynopithecus niger (Celebes black ape)	5.0 mg/kg IM
Galago crassicaudatus (Galago, thick-tailed bushbaby)	2.5 mg/kg IM
Galago senegalensis (Lesser galago, senegal bushbaby)	6.9 mg/kg IM

Gorilla gorilla gorilla (Lowland gorilla)	2.0-2.5 mg/kg IM
Hylobates concolor (White-cheeked gibbon, black gibbon)	3.0 mg/kg IM
Hylobates lar (White-handed gibbon)	3.0 mg/kg IM
Lagothris lagotricha (Woolly monkey)	4.4 mg/kg IM
Lemur catta (Ring-tailed lemur)	3.6 mg/kg IM
Lemur fulvus (Brown lemur)	5.0 mg/kg IM
Lemur macaco (Black lemur)	3.8 mg/kg IM
Macaca arctoides (Stumped-tailed macaque)	11.0 mg/kg IM
Macaca fascicularis (Cynomologus, crab-eating macaque)	4.6 mg/kg IM
Macaca mulatta (Rhesus monkey, Rhesus macaque)	5.0 mg/kg IM
Macaca nemestrina (Pig-tailed macaque)	3.3 mg/kg IM
Macaca radiata (Bonnet monkey)	4.4 mg/kg IM
Macaca silenus (Lion-tailed macaque)	3.5 mg/kg IM
Macaca sinica (Toque monkey)	0.9 mg/kg IM
Macaca sylvanus (Barbary ape)	2.9 mg/kg IM
Mandrillus sphinx (Mandrill)	1.7 mg/kg IM
Pan troglodytes verus (Chimpanzee)	4.0 mg/kg IM
Papio anubis (Olive baboon)	2.9 mg/kg IM
Papio cynocephalus (Yellow baboon, savanna baboon)	11.0 mg/kg IM
Papio hamadryas (Sacred baboon, hamadryas baboon)	1.3 mg/kg IM
Papio ursinus (Chacma baboon)	3.4 mg/kg IM
Pongo pygmaeus pygmaeus (Bornean orangutan)	2.7 mg/kg IM
Presbytis entellus (Indian, entellus langur)	3.3 mg/kg IM
Presbytis senex (Purple-faced leaf langur)	2.5 mg/kg IM
Saguinus oedipus (Cotton-top marmoset cotton-headed tamarin)	2.2 mg/kg IM
Saimiri sciureus (Common squirrel monkey)	5.5 mg/kg IM
Symphalangus syndactylus (Siamang gibbon)	3.4 mg/kg IM
Theropithecus gelada gelada (Gelada baboon)	2.2 mg/kg IM

FELIDAE

The quality of anaesthesia is excellent. The main route of administration is intramuscular. The intensity of the anaesthesia is dose correlated. The average induction time is 7 minutes (shorter in smaller species and more in larger species). Some neurological side effects have been described in tiger a few days following anaesthesia, therefore it might be preferable to avoid Zoletil® use in this species.

	Mean Dose
Acinonyx jubatus (Cheetah)	1.6-3.5 mg/kg IM
Felis bengalensis (Leopard cat)	7.5 mg/kg IM
Felis caracal (Caracal lynx)	4.4 mg/kg IM
Felis chaus (Jungle cat)	4.2 mg/kg IM
Felis concolor (Mountain lion, puma)	7.0 mg/kg IM
Felis domesticus (Felis silvestris lybica)	10.0-15.0 mg/kg IM 5.0-7.5 mg/kg IV
Felis geoffroyi (Geoffrey cat)	4.0 mg/kg IM
Felis jaguarondi (Jaguarondi)	6.0 mg/kg IM
Felis libyca (African wild cat)	4.4 mg/kg IM
Felis manul (Pampa cat)	4.0 mg/kg IM
Felis pardalis (Ocelot)	8.3 mg/kg IM
Felis rufus (Bodcat, lynx)	6.0 mg/kg IM
Felis serval (Serval cat)	4.9 mg/kg IM
Felis silvestris lybica	4.4 mg/kg IM
Felis temmincki (Temmicks golden cat)	4.0 mg/kg IM
Felis viverrinus (Fishing cat)	3.0 mg/kg IM
Lynchailurus pajeros (Pampa's cat)	4.0 mg/kg IM
Panthera leo (Lion)	5.0 mg/kg IM
Panthera nebulosa (Clouded leopard)	5.0 mg/kg IM
Panthera onca (Jaguar)	4.0 mg/kg IM
Panthera pardus (Black leopard, African spotted leopard)	4.0 mg/kg IM
Panthera tigris (Tiger-Bengal)	4.0 mg/kg IM
Panthera uncia (Snow leopard)	4.0 mg/kg IM



CANIDAE

Zoletil® can be used intramuscularly or intravenously in dogs. Premedication will allow a better recovery. The induction time is 7-8 minutes. For other canidae the results are very similar to those obtained in dogs.

	Mean Dose
Canis familiaris (Dog)	5.0-11.0 mg/kg IV
Canis latrans (Coyote)	10.0 mg/kg IM
Canis lupus (Grey wolf, timber wolf, iranian wolf)	5.0-10.4 mg/kg IM
Crocuta crocuta (Spotted hyena)	4.0 mg/kg IM
Fennecus zerda (Fennec fox)	13.0 mg/kg IM
Lycaon pictus (Cape hunting dog)	2.5-9.4 mg/kg IM
Nyctereutes procyonoides (Raccoon dog)	6.6 mg/kg IM
Urocyon cinereoargenteus (Gray fox)	8.8 mg/kg IM
Vulpes vulpes (Red Fox)	4.0-10.0 mg/kg IM

PROCYONIDAE

	Mean Dose
Ailuropoda melanoleuca (Giant Panda)	5.1 mg/kg IM
Ailurus fulgens (Lesser Panda, Red Panda)	4.1 mg/kg IM
Bassariscus astutus (Ring-tailed cat)	10.0 mg/kg IM
Potas flavus (Kinkajou)	5.0 mg/kg IM
Procyon lotor (Racoon)	10.0 mg/kg IM

MUSTELIDAE

	Mean Dose
Dasyurus maculatus (Tiger quoll)	6.2 mg/kg IM
Eira Barbara (Tayra)	3.3 mg/kg IM
Meles meles (Badger)	9.8 mg/kg IM
Mellivora capensis (Honey Badger)	2.2 mg/kg IM
Mephitis mephitis (Striped Skunk)	8.2 mg/kg IM
Mustela putorius (Ferret, European polecat)	5.0 mg/kg IM
Mustela vison (Mink)	8.0 mg/kg IM
Taxidea taxus (American Badger)	4.4 mg/kg IM

URSIDAE

Many studies have been performed in ursidae, particularly polar bear, showing excellent results with short and calm induction. Hyperthermia can sometimes be observed. Dosage should be higher in fat polar bears.

	Mean Dose
Helarctos malaynus (Sun bear)	4.1 mg/kg IM
Melursus ursinus (Sloth bear)	6.0 mg/kg IM
Tremartos ornatus (Spectacled bear)	7.0 mg/kg IM
Ursus americanus (American black bear)	5.0 mg/kg IM
Ursus arctos beringianus (Kamchacka bear)	4.0 mg/kg IM
Ursus arctos horribilis (Grizzly bear)	7.0-9.0 mg/kg IM
Ursus arctos middendorffi (Kodiak bear)	5.5 mg/kg IM
Ursus arctos syriacus (Brown bear)	5.0 mg/kg IM
Ursus maritimus (Polar bear (fat))	8.1 mg/kg IM
Ursus maritimus (Polar bear (thin))	5.1 mg/kg IM
Ursus thibetanus (Himalayan, asiatic bear)	3.6 mg/kg IM

ARTIODACTYLAE

For pigs, induction is quickly obtaines but myorelaxation and analgesia is insufficient to allow surgery. However, combination with Xylazine will provide efficient anaesthesia.

For bovidae, quick immobilisation of calves can be obtained by using 4-10mg/kg IM. Higher doses may cause apnea. Combination with intravenous Xylazine will give longer relaxation and better analgesia.

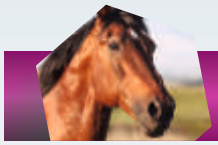
For sheep, good analgesia is obtained with recommended intramuscular doses. Intravenous administration allows a surgery time of approximately 1 hour. A dose of 0.066 mg/kg will result in salivation.

For Lama, recommended doses will allow immobilisation but relaxation and analgesia are not sufficient to allow surgery.

	Mean Dose
Aepyceros melampus (Impala)	4.8 mg/kg IM
Alces alces gicas (Alaskan moose)	6.1 mg/kg IM
Ammotragus lervia (Aoudad)	3.5-8.6 mg/kg IM
Antidorcas marsupialis (Springbok)	10.6 mg/kg IM
Antilocapras indainas (Antelope cervicapra)	6.0 mg/kg IM

Babyrousa babyrussa (Babirusa)	5.3 mg/kg IM
Bison bison (American bison)	5.0 mg/kg IM
Bos indicus (Zebu)	3.6 mg/kg IM
Bos taurus (Domestic cattle)	4.0 mg/kg IM
Capra hircus (African pygmy goat, common goat)	8.6 mg/kg IM
Capra ibex ibex	5.0 mg/kg IM
Capra pyrenaica hispanica	8.0-15 mg/kg IM
Capra spp (European Domestic goat spp)	5.0 mg/kg IM
Capra spp (Mexican goats spp)	7.5 mg/kg IM
Cephalophus maxwelli (Maxwell duiker)	7.7 mg/kg IM
Cervus axis axis (Axis deer)	2.6 mg/kg IM
Cervus canadensis (Wapiti)	9.2 mg/kg IM
Cervus dama (Fallow deer)	33.0 mg/kg IM
Cervus eldi (Elds deer)	4.7 mg/kg IM
Cervus mariannus mariannus (Luzon Sambar deer)	6.6 mg/kg IM
Cervus nippon pseudaxis (Sika deer)	4.4 mg/kg IM
Connochaetes gnu (White-tailed gnu, black wildebeest)	37.0 mg/kg IM
Connochaetes taurinus (Brindled gnu, blue wildebeest)	4.4 mg/kg IM
Connochaetes taurinus taurinus (Blue-bearded gnu)	6.6 mg/kg IM
Dama dama (Daim)	20.0 mg/kg IM
Damaliscus dorcas (Blesbok, bontebok)	7.0 mg/kg IM
Gazella dorcas (Dorcas gazelle)	14.0 mg/kg IM
Gazella granti (Grantis gazelle)	9.0 mg/kg IM
Gazella leptoceros (Loder's gazelle, slender-horned gazelle)	9.0 mg/kg IM
Gazella soemmeringi (Soemmerings gazelle)	11.0 mg/kg IM
Gazella subqutturosa (Persian Gazelle)	5.7 mg/kg IM
Gazella thomsoni (Thomson's gazelle)	8.8 mg/kg IM
Hemitragus jemiahicus (Himalayan tahr)	3.8 mg/kg IM
Hippotragus niger (Sable antelope)	22.5 mg/kg IM
Lama (Lama)	4.4 mg/kg IM
Lama Guanicoe pacos (Alpaca)	4.8-6.0 mg/kg IM
Munctiacus muntjak reevesi (Mountjak)	6.10 mg/kg IM
Neotragus moschatus (Suni antelope)	16.0 mg/kg IM
Odocoileus hemionus (Mule deer)	14.6 mg/kg IM

Odocoileus virginianus (White-taildeer)	14.4 mg/kg IM
Oryx gazella (Gemsbok Oryx)	31.0 mg/kg IM
Oryx gazella beisa	9.0 mg/kg IM
Oryx gazella dammah	2.0-4.0 mg/kg IM
Oryx gazella leucoryx	1.0-2.0 mg/kg IM
Ovis aries (Domestic sheep)	12.0 mg/kg IM 14.4 mg/kg IV
Ovis canadensis (Rocky Mountain bighorn sheep)	4.9 mg/kg IM
Ovis musimon (Moufl on sheep)	6.5 mg/kg IM
Rangifer tarandus (Siberian reindeer)	4.4 mg/kg IM
Rupicapra rupicapra	7.7 mg/kg IM
Sus scrofa (Wild boar)	6.0-9.0 mg/kg IM
Sus scrofa domesticus (Domestic Pig)	6.0 mg/kg Zoletil + 1.1-2.2 mg/kg xylazine IM or : 10.0 mg/kg Zoletil + 0.1 mg/kg medetomidine IM
Sus scrofa vittatus (Pot-bellied Pig)	4.4 mg/kg Zoletil + 2.2 mg/kg xylazine IM or : 1.8 mg/kg Zoletil + 0.9 mg/kg ketamine + 0.9 mg/kg xylazine IM
Sylvicapra grimmila coronata (Crowned duiker)	4.4 mg/kg IM
Syncerus caffer (African buffalo)	5.0 mg/kg IM
Taurotragus oryx (Common eland, cape eland)	11.5 mg/kg IM
Tayassu tajacu sonoriensis (Collared peccary)	9.0 mg/kg IM
Tragelaphus angasi (Nyala)	6.6 mg/kg IM
Tragelaphus scriptus (Bushbuck)	8.5 mg/kg IM
Tragelaphus spekii (Sitatunga antelope)	3.0 mg/kg IM
Tragelaphus strepsiceros (Greater kudu)	6.1 mg/kg IM



PERISSODACTYLES

Combination of Zoletil® and Xylazine allows short anaesthesia, secure with a calm recovery. Heart rate decreases after Xylazine administration but recovers after Zoletil® injection.

	Mean Dose
Equus (Horse)	2.2 mg/kg Zoletil IV + 1.1 mg/kg xylazine IV
Equus (Pony)	2.0 mg/kg Zoletil IV + 0.02-0.04 mg/kg detomidine IV
Equus asinus asinus (Donkey)	1.1 mg/kg Zoletil + 1.1 mg/kg xylazine IV
Equus hemionus (Kulan)	1.1 mg/kg Zoletil + 1.1 mg/kg xylazine IV
Equus quagga	Induction : 66 mg/kg detomidine HCl IM followed by : 2.2 mg/kg Zoletil IV

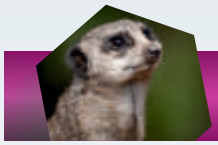
MARSUPIALA

	Mean Dose
Bettongia (Short nosed rat kangaroo)	13.6 mg/kg IM
Burramys parvus / Burramys oppossum (Mountain pygmy possum)	6.7 mg/kg IM
Chironectes minimus (Yapock)	7.0 mg/kg IM
Dendrolagus bennetianus (Bennet kangaroo)	5.0 mg/kg IM
Dendrolagus goodfellowi (Goodfellow tree kangaroo)	5.0 mg/kg IM
Dendrolagus matschiei (Tree kangaroo)	11.0 -14.0 mg/kg IM
Lasiorhinus latifrons (Southern hairy-nosed wombat)	3.0 mg/kg IM
Macropus giganteus (Eastern grey kangaroo)	5.0 - 7.0 mg/kg IM
Macropus rufogriseus (Red-necked wallaby)	5.0 - 7.0 mg/kg IM
Macropus rufus (Red kangaroo)	7.0 - 10.0 mg/kg IM
Monodelphis (Short tailed Opposum)	6.7 mg/kg IM
Perameles gunnii (Eastern barred bandicoot)	5.0 mg/kg IM
Petrogale penicillata (Brush tailed rock wallaby)	5.0 mg/kg IM
Phascolarctos cinereus (Koala)	3.0 - 7.0 mg/kg IM
Phascogale tapoatafa (Brush tailed phascogale)	10.0 mg/kg IM

Phascolonus hirsutus (Mainland wombat)	2.0 - 2.2 mg/kg IM
Phascolonus hirsufus (Great wombat)	2.1 mg/kg IM
Potorous (Gilbert rat kangaroo)	9.4 mg/kg IM
Potorous tridactylus (Long nosed rat kangaroo)	14.7 mg/kg IM
Pseudocheirus peregrinus (Ringtail possum)	8.5 mg/kg IM
Sarcophilus harisii (Tasmanian devil)	3.3 - 5.9 mg/kg IM
Thylogale stigmatica (Pademelon wallaby)	5.0 - 7.0 mg/kg IM
Trichosurus caninus (Mountain brushtail possum)	19.0 mg/kg IM
Trichosurus vulpecula (Brushtail possum)	7.7 - 11.5 mg/kg IM
Vombatus ursinus (Common wombat)	5.0 - 10.0 mg/kg IM
Wallabia bicolor (Swamp wallaby)	3.0 - 5.0 mg/kg IM
Wallabia parma (Parma wallaby)	6.5 mg/kg IM

PINNIPEDIA

	Mean Dose
Enhydra lutris (Sea otter)	2.0 mg/kg IM
Eumetopias jubata (Steller sea lion)	1.8 - 2.5 mg/kg IM
Halichoerus grypus (Grey seal)	1.0 mg/kg IM
Hydrurga leptonyx (Leopard seal)	0.75 - 1.5 mg/kg IM
Leptonychotes weddelli (Weddell seal)	0.5 - 1.0 mg/kg IM
Lutra canadensis (North American otter)	5.4 mg/kg IM
Mirounga augustirostris (Northern elephant seal)	1.7 mg/kg IM
Mirounga leonina (Elephant seal)	1.0 mg/kg IM
Odobenus rosmarus (Walrus)	2 mg/kg IM
Pusa hispida (Ringed seal)	4.7 mg/kg IM
Zalophus californianus (Sea lion)	1.2 mg/kg IM



VIVERRIDAE

	Mean Dose
Arctictis binturong (Binturong)	1.1 mg/kg IM
Atilax paludinosus (African water mongoose)	5.5 mg/kg IM
Bdeogale species (Black-footed mongoose)	4.4 mg/kg IM
Cryptoprocta ferox (Fanaloka, Fossa)	5.0 mg/kg IM
Galidia elegans (Ring tail mongoose)	4.4 mg/kg IM
Genetta tigrina (Blotched genet)	2.2 mg/kg IM
Hemigalus derbyanus (Banded palm civet)	6.6 mg/kg IM
Mellivora capensis (Ratel)	2.2 mg/kg IM
Nandinia binotata (African palm civet)	7.0 mg/kg IM
Paguma larvata (Formosan masked civet, masked palm civet)	3.0 mg/kg IM
Paradoxurus hermaphroditus (Palm civet)	3.5 mg/kg IM
Prionodon linsang (Linsang)	4.4 mg/kg IM
Viverricula indica (Lesser oriental civet)	4.4 mg/kg IM

BIRDS AND FOWLS

Anaesthesia with Zoletil® is not recommended by IM route for ostriches.

	Mean Dose
Acridotheres tristis (Mynah bird)	26.5 mg/kg IM
Alopochen aegyptiacus (Egyptian goose)	22.0 mg/kg IM
Anas crecca carolinensis (Green-winged teal)	35.0 mg/kg IM
Anas discors (Blues-winged teal)	7.0 mg/kg IM
Anas platyrhunchos (Mallard)	40.0 mg/kg IM
Anserini albiforms frontalis (White-fronted goose)	2.7 mg/kg IM
Aquila (Eagle)	10.0 mg/kg IM
Ara alarauna (Blue gold macaw)	12.0 mg/kg IM
Ara macao (Scarlet macaw)	7.7 mg/kg IM
Buceros rhinoceros (Rhinoceros hornbill)	28.7 mg/kg IM
Buteo magnirostris (Roadside hawk)	22.0 mg/kg IM
Butorides virescens (Green heron)	75.0 mg/kg IM
Cacatua galerita (Sulfur-crested cockatoo)	2.6 mg/kg IM

Cairina moschata (Muscovy duck)	5.9-15.6 mg/kg IM
Charadriidae (Plover)	17.6 mg/kg IM
Choephaga picta (Lesser Magellan goose)	7.7 mg/kg IM
Chrysolophus pictus (Golden pheasant)	16.6 mg/kg IM
Columba livia (Rock pigeon, rock dove, domestic pigeon)	25.0 mg/kg IM
Cyanoliseus patagonus (Patagonian parrot)	11.0 mg/kg IM
Cygnus atratus (Black swan)	6.6 mg/kg IM
Cygnus melanocoryphus (Black-necked swan)	5.5 mg/kg IM
Dromaius novaehollandiae (Emu)	17.0 mg/kg IM
Gallus gallus (Coq)	30.0 mg/kg IM
Gyps fulvus (Griffon vulture)	20.0 mg/kg IM
Haliaetus leucodephalus (Bald eagle)	13.2-22.0 mg/kg IM
Melopsittacus undulatus (Parakeet)	21.0 mg/kg IM
Mycteria americana (Wood ibis, wood stork)	11.0 mg/kg IM
Pardion haliaetus (Osprey)	13.0 mg/kg IM
Parrot	10.0 mg/kg IM
Pavo cristatus (Pea hen)	11.3 mg/kg IM
Philohela minor (Woodcock)	44.0 mg/kg IM
Phoenicopteri species (Flamingo)	22.0 mg/kg IM
Phoenicopterus ruber chilensis (Chilean fl amingo)	6.6 mg/kg IM
Psittacula krameri (African ring-neck parakeet)	26.0 mg/kg IM
Rhea americana (Greater rhea, common rhea)	2.0 mg/kg IM
Rollulus rouloul (Crested wood partridge)	10.0 mg/kg IM
Sphyrapicus varius (Yellow-bellied sapsucker)	50.0 mg/kg IM
Streptopelia risoria (Ring-necked dove)	60.0 mg/kg IM
Struthio camelus (Ostrich)	4.0-8.0 mg/kg IV
Tyto alba (Common barn owl)	14.0 mg/kg IM

REPTILIA

It is possible to use Zoletil® for surgery in iguanidae, but for snakes, an additive gaseous anaesthesia is required. Slow metabolism of reptiles should be kept in mind, as well as slower metabolisation of anaesthetics in case of low body temperature.

	Mean Dose
Boa constrictor	22.0 mg/kg IM
Clemmys insculpta (Wood turtle)	10.0 mg/kg IM
Crocodylus niloticus (Nile crocodile)	5.0 -10.0 mg/kg IM
Crotalus atrox (Diamondback rattlesnake)	35.0 mg/kg IM
Crotalus horridus (Timber rattlesnake)	75.0 mg/kg IM
Iguana iguana (Common iguana)	10.0 - 33.0 mg/kg IM
Lampropeltis getulus californiae (California kingsnake)	40.0 mg/kg IM
Phrynops geoffroanus (Large side-neck turtle)	5.2 mg/kg IM
Pseudemys scripta elegans (Red-ear turtle)	8.7 mg/kg IM
Terrapene carolina	4.4 mg/kg IM
Testudo hermanni	90 mg/kg IM

RODENTS

	Mean Dose
Callosciurus erythraeus (Formosan tree squirrel)	12.0 mg/kg IM
Cavia porcellus (Guinea pig)	10.0 - 25.0 mg/kg IM
Chinchilla villidera lanigera (Chinchilla)	15.0 mg/kg IM
Cobaye	20.0 mg/kg IM
Dinomys branickii (Pacarana)	4.4 mg/kg IM
Hamster	40.0 - 60.0 mg/kg IM
Mus spp. (Mouse)	100.0 - 160.0 mg/kg IM
Myoprocta pratti (Acouchi)	5.5 mg/kg IM
Oryctolagus cuniculus (Rabbit)	15.0 mg/kg + 5.0 mg/kg Xylazine IM
Plagiodontia aedium (Hutia)	6.6 mg/kg IM
Rattus spp. (Rat)	20.0 - 40.0 mg/kg IM
Sciurus carolinensis (Grey squirrel)	5.5 mg/kg IM

MISCELLANEOUS

	Mean Dose
Choloepus hoffmanni (Hoffman's sloth)	3.3 mg/kg IM
Loxodonta africana (African elephant)	3.0 mg/kg IM
Tapirus terrestris (South American tapir)	4.5 mg/kg IM
Tachyglossus aculeatus (Short-beaked echidna)	3.0 - 6.0 mg/kg IM

Antidotes

- Doxapram: Has antagonistic activity against the tiletamine-zolazepam, increasing both heart and respiratory rates and reducing the arousal time (5.5mg/kg IV)
- Atipamezole: (antagonist only if protocol contains α-2 agonists) 0.05 mg/kg IM (Kim HU 2007). Atipamezole should be administered intramuscularly 20 minutes after anaesthesia induction
- Flumazenil: Antagonist of Zolazepam only (Won, 2010)
  - Competitive benzodiazepine receptor antagonist
  - Reverses the sedative and muscle-relaxant effects of Zolazepam
  - 0.1 mg/kg at least 20 min after Zoletil® at 10mg/kg IV

Contraindications

In animals with:

- Severe cardiac or respiratory disease, severe hypertension; cranial trauma and intracranial tumour
- Renal, pancreatic and hepatic functions impairment
- For Caesarean section and in pregnant animals

ONE VIAL OF 5 ML SOLVENT CONTAINS:
Sterile Water for Injections IP.....5ml

ONE ML OF RECONSTITUTED SOLUTION CONTAINS:
Tiletamine (as Hydrochloride).....25 mg
Zolazepam (as Hydrochloride).....25 mg

Backed by Virbac's expertise in Anaesthetics

Storage

Prior to opening:
Protect from exposure to light

Post re-constitution:
24 hours between 2 to 8°C

Zoletil®

Effective, Safe, Convenient, Versatile

Wide Safety Margin

The high therapeutic index of Zoletil™ supports the safety of the anaesthetic agent. No known or reported allergic reactions to the actives or the base of the product.

I.M. and I.V. Dosage

Flexibility of administration enables coping with different animal behaviour and species. I.M. use suited to fractious animals, especially cats. Commonly used for darting.

Multi-Species

Zoletil™ allows practitioners to develop a high level of expertise with one anaesthetic agent, which can be used in several species. This reduces the number of anaesthetic protocols a practice must have.

Level of Anaesthetic is Dose Dependent

The dose-related sedation and anaesthesia of Zoletil™ enables greater versatility when using the drug for different procedures.

FOR FURTHER INFORMATION:

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Shaping the future of animal health

Virbac