SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Caninsulin vet. 40 IU/ml suspension for injection for dogs and cats

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Active substance:
Each ml contains 40 IU insulin porcine, containing 35% amorphous insulin and 65% crystalline Zinc insulin.

Excipients:

Qualitative composition of excipients and other constituents	**Quantitative composition if that information is essential for proper administration of the veterinary medicinal product**
Zinc chloride	
Methyl parahydroxybenzoate	1.00 mg/ml
Sodium acetate trihydrate	
Sodium chloride	
Hydrochloric acid and/or Sodium hydroxide for pH adjustment	
Water for injection	

White to almost white suspension for injection

3. CLINICAL INFORMATION

3.1 Target species

Dogs and cats

3.2 Indications for use for each target species

Diabetes mellitus in dogs and cats.

3.3 Contraindications

Do not use in case of hypoglycemia.
Do not use in cases of hypersensitivity to insulin porcine or to any of the excipients

3.4 Special warnings

In the female dog, clinical signs of diabetes mellitus may occur in association with metestrus or during treatment with progestogens.

3.5 Special precautions for use

Special precautions for safe use in the target species:

Caninsulin vet is not intended for the treatment of animals with severe, acute diabetes mellitus with ketoacidosis. It is important to establish a strict feeding schedule which will include a minimum of fluctuations and changes. This should be done in collaboration with the pet owner. Irregular or

excessive exercise should be avoided.
When the dose has been established, the level of glucose in the urine should be checked regularly. Test strips, which can be used by the pet owner normally have sufficient accuracy.

Before Caninsulin vet. is administered, the pet owner shall be instructed to always keep glucose tablets (Dextrosol) at home. Signs of hunger, increasing shyness, uncoordinated movements, muscle spasms, unsteady movements and disorientation indicate the development of hypoglycemia and require immediate administration of glucose solution and food to restore blood glucose levels.

Hypoglycemia, as a result of an overdose of insulin, can trigger a hormonal response and the release of glucose. Rebound hyperglycemia may thereby manifest as glycosuria for part of 24-hour day.

In the cat, diabetic clinical remission is possible. The diagnosis may therefore need to be reconsidered and the treatment discontinued.

Caninsulin vet. vials must be administered with specific syringes suitable for an insulin concentration of 40 IU/ml.

Caninsulin vet. cartridges must be used with the insulin pen VetPen only.

Special precautions to be taken by the person administering the veterinary medicinal product to animals
Accidental self-injection may cause clinical symptoms of hypoglycemia, which should be treated with oral administration of glucose. In case of accidental self-injection, seek medical advice immediately and show the package leaflet or the label to the physician. Accidental medication may induce local or systemic allergic reactions in sensitive individuals.

Special precautions for the protection of the environment:

Not applicable.

3.6 Adverse events

Dogs and cats

Rare (1 to 10 animals / 10,000 animals treated):	Hypoglycaemia
Very rare (<1 animal / 10,000 animals treated, including isolated reports):	Injection site reaction[1] Hypersensitivity reaction

[1] The reaction is usually mild and reversible.

Reporting adverse events is important. It allows continuous safety monitoring of a veterinary medicinal product. Reports should be sent, preferably via a veterinarian, to either the marketing authorisation holder or its local representative or the national competent authority via the national reporting system. See the package leaflet for respective contact details.

3.7 Use during pregnancy, lactation or lay

Pregnancy and lactation:
Can be used during pregnancy or lactation in exceptional cases but this requires close veterinary supervision to account for changes in metabolic requirements during this period.

3.8 Interaction with other medicinal products and other forms of interaction

Concomitant treatment with corticosteroids, thyroid hormones, thiazide diuretics, adrenergics or progestogens (ovariohysterectomy should be considered) may increase the need for insulin and should therefore be avoided. ACE-antagonists, anabolic steroids and salicylates may reduce the need for insulin. Concomitant treatment with beta-blocking agents may mask the symptoms of hypoglycemia and a dose reduction may be required.

3.9 Administration routes and dosage

Caninsulin should be administered subcutaneously and must not be administered intravenously.

Shake the vial/cartridge thoroughly until a homogeneous, uniformly milky suspension is obtained. Foam on the surface of the suspension formed during shaking should be allowed to disperse before the insulin is used. After this, the product should be gently mixed by turning the vial/cartridge back and forth a few times to maintain the homogeneous, uniformly milky suspension.
Agglomerates can form in insulin suspensions: do not use the product if the suspension does not have a homogeneous, uniformly milky appearance after shaking thoroughly.

Vial:
For the vial, specific syringes suitable for an insulin concentration of 40 IU/ml should be used.

Cartridge:
The cartridge should only be used with the insulin pen VetPen. VetPen is available in two versions: VetPen 8, which delivers 0.5 to 8 units per injection with every step, corresponding 0.5 units and VetPen 16, which delivers 1 to 16 units per injection with every step, corresponding 1 unit.
VetPen should only be used with 29 G/12 mm VetPen needles.
VetPen is accompanied by a separate instruction for use. The insulin pen must be used according to the manufacturer's instructions. The instructions for use must be followed carefully for how to load the cartridge, how to attach the needle and how to administer the insulin injection.
If the insulin pen is damaged or not working properly (due to mechanical defects) it has to be discarded and a new insulin pen has to be used.
If the insulin pen malfunctions (see the instructions for use of the pen), insulin suspension can be extracted from the cartridge with a syringe (suitable for an insulin concentration of 40 IU/ml) and injected.

Adjustment phase

Dogs:
The dose depends on the degree of insulin insufficiency and therefore differs from case to case. Any subsequent adjustment of the insulin dose should be made either by increasing or decreasing the daily dose by approximately 10% depending on the clinical signs of diabetes and on the results of serial blood glucose measurement. However, alterations should not be made more frequently than every 3 to 4 days.

Insulin therapy is initiated with the starting dose of 0.5 IU/kg body weight once daily, rounded down to the lowest integer of units. See examples in the table below:

Dog body weight	Starting dose of Caninsulin vet. per dog
5 kg	2 IU once daily
10 kg	5 IU once daily
15 kg	7 IU once daily
20 kg	10 IU once daily

The injection is administered subcutaneously once daily together with feeding. The duration of the effect may vary.
In some dogs, the administration of insulin may be needed twice daily, often requiring a higher total daily dose.

When the daily dose is divided into two doses, each single dose must correspond to the dose administered once daily, reduced by 25% and rounded down to the nearest integer.
Example: If a dog which weighs 10 kg receives 5 IU once daily, the new dose (rounded down to the nearest integer) initially is 3 IU per injection, for a total of 6 IU per day divided into two doses.
The two daily doses should be administered at 12-hour intervals and together with feeding.
Any further dose adjustments should be done step by step as previously explained. To achieve a balance between the generation of glucose and the effect of the insulin, feeding must be synchronized with the treatment. The daily ration shall be divided into two meals. The quality and quantity of the daily food intake should stay constant.
In dogs treated with insulin once daily, 1/3 of the daily food intake should be in the morning before the injection and remaining feed should be given 6-8 hours later. In dogs treated twice daily, each part of the feed should be given before each injection with Caninsulin vet. Each meal should be fed at the same time each day.

Cats:
The starting dose is 1 IU or 2 IU per injection based on the baseline blood glucose concentration, according to the following table.

Cat blood glucose concentration	**Starting dose of Caninsulin vet. per cat**
<20 mmol/l or <3.6 g/l (<360 mg/dl)	1 IU twice daily
≥ 20 mmol/l or ≥3.6 g/l (≥360 mg/dl)	2 IE twice daily

Caninsulin vet. should be injected 2 times daily. The quality and quantity of the daily food intake should stay constant. The insulin dose depends on the degree of insulin insufficiency. This is determined by a series of measurements of glucose in the blood, and varies from case to case.

Higher doses than 2 IU per injection is not recommended during the first three weeks of treatment.

Any adjustment of the insulin dose by increasing or decreasing the daily dose should be made according to the results of blood glucose measurement. Alterations should not be made more frequently than once a week. Increments by 1 IU per injection are recommended, but no more than 2 IU should be administered per injection during the first three weeks of treatment.

Depending on the day-to-day variation in blood glucose levels and variations in insulin response over time, larger or more frequent increases in dose are not recommended.

<u>Maintenance therapy:</u>

Dogs and cats:
A long-term maintenance therapy should be determined when the insulin dose has been established and the animal is stabilized. Points in time should be set and agreed upon for detection of under-or overdose of insulin and insulin dose adjustments when necessary. Careful stabilization and monitoring will help to limit the chronic problems associated with diabetes, such as cataracts in dogs and fatty liver in dogs and cats. The aim with the treatment is to reduce or eliminate the clinical signs of the disease by minimizing the occurrence of hyperglycemia, especially in cats.
Adjustments to the insulin dose should be made based on interpretation of the clinical signs supported by the laboratory results. The blood glucose concentrations shall be kept between 1 and 3 g/L (i.e. 100-300 mg/dl or 5.5 to 17 mmol /L), a normal body weight should be kept and polydipsia, polyuria and any polyphagia should be minimized and/or eliminated.

The pet owner should check the animal's general condition and make notes on: well-being, thirst and appetite. If deemed necessary by a veterinarian, the occurrence of glucose in the urine is determined. The veterinarian checks the animal’s health and the treatment records compiled by the pet owner every three or six months or more often if there are problems. Blood glucose concentration should be measured at these visits. Determination of the level of fructosamine may be indicated. Any adjustment in the insulin dose is made by a veterinarian. This should be based on a thorough analysis of the clinical data and the laboratory results.

The pet owner should be instructed to recognize the clinical signs of hypo-and hyperglycemia. Polyuria, polydipsia and polyphagia together with weight loss, poor general health, hair loss or poor coat and lethargy are the most common clinical signs of hyperglycemia. The condition requires administration of insulin or dose adjustment of the insulin to normalize the blood glucose levels.

3.10 Symptoms of overdose (and where applicable, emergency procedures and antidotes)

Insulin overdose results in clinical symptoms of hypoglycemia, such as hunger, impatience, agitation, lethargy, disorientation, seizures and coma while some animals only become quiet and stop eating. Immediate oral administration of glucose (1g/kg body weight) can alleviate these symptoms. Small amounts of food shall be given repeatedly at 1-2 hour intervals after the initial administration of glucose. Pet owners should be advised to always keep an adequate source of glucose available. Partial hypoglycemia, as a result of an overdose of insulin, may trigger a hormonal response and a release of glucose. (See section 3.5).

3.11 Special restrictions for use and special conditions for use, including restrictions on the use of antimicrobial and antiparasitic veterinary medicinal products in order to limit the risk of development of resistance

Not applicable.

3.12 Withdrawal periods

Not applicable.

4. PHARMACOLOGICAL INFORMATION

4.1 ATCvet code:

QA10AC03

4.2 Pharmacodynamics

Caninsulin is an intermediate acting insulin. It contains insulin porcine, which is identical to dog insulin.

Insulin facilitates the uptake of glucose from food and glycogen from the cells, which are in need of energy for their metabolism. The liver, adipose tissue and in particular the brain, use large amounts of glucose. In diabetes mellitus, there is relative or absolute insulin insufficiency.

4.3 Pharmacokinetics

Caninsulin vet. is a medium-duration insulin. After subcutaneous injection a marked effect on the blood sugar levels is obtained after about 2 hours. The effect peaks at 7-12 hours post injection and the duration is approximately 24 hours in dogs. In cats, the effect peaks at 1.5 hours (median, range 0.5 to 10 hours). The duration in cats is about 10 hours (median, range 5-12 hours). The absorption rate and duration is dependent on the injection site and the administered dose.

5. PHARMACEUTICAL PARTICULARS

5.1 Major incompatibilities

In the absence of compatibility studies, this veterinary medicinal product must not be mixed with other veterinary medicinal products.

5.2 Shelf life

Shelf-life of the veterinary medicinal product as packaged for sale: 2 years.
Vial: Shelf-life after first opening the immediate packaging: 6 weeks
Cartridge: Shelf-life after first opening the immediate packaging: 4 weeks.

5.3 Special precautions for storage

Store in a refrigerator (2 °C – 8 °C).
Do not freeze.
Store in the original container.
Protect from light.
Store in an upright position.
Opened containers are stored at 25 °C or below.

5.4 Nature and composition of immediate packaging

Vials:
Carton box with 10 x 2.5 ml glass vials (Ph. Eur. Type I). Bromobutyl rubber stopper and sealed with an aluminium cap.
Carton box with 10 x 10 ml glass vials (Ph. Eur. Type I). Bromobutyl rubber stopper and sealed with an aluminium cap.

Cartridges:
Carton box with 10 x 2.7 ml glass cartridges (Ph. Eur. Type I) with a plunger, a rubber stopper and sealed with an aluminium cap.

Not all pack sizes may be marketed.

5.5 Special precautions for the disposal of unused veterinary medicinal products or waste materials derived from the use of such products

Medicines should not be disposed of via wastewater <or household waste>.

Use take-back schemes for the disposal of any unused veterinary medicinal product or waste materials derived thereof in accordance with local requirements and with any national collection systems applicable to the veterinary medicinal product concerned.

6. NAME OF THE MARKETING AUTHORISATION HOLDER

[*To be completed nationally*]

7. MARKETING AUTHORISATION NUMBER(S)

[*To be completed nationally.*]

8. DATE OF FIRST AUTHORISATION

<Date of first authorisation:> <{DD/MM/YYYY}> <{DD month YYYY}.>
[*To be completed nationally.*]

9. DATE OF THE LAST REVISION OF THE SUMMARY OF THE PRODUCT CHARACTERISTICS

2023-07-12

10. CLASSIFICATION OF VETERINARY MEDICINAL PRODUCTS

Veterinary medicinal product subject to prescription.

Detailed information on this veterinary medicinal product is available in the Union Product Database.