

Panting and pumping

Thermal control: heat stress



What do panting and pumping indicate?

- Panting and pumping are thermoregulatory behaviours and indicate heat stress.
- Pigs have a very limited number of sweat glands, and therefore the major way pigs thermoregulate is via behavioural adaptation, e.g. pigs increase respiration rate to lose heat.
- High humidity will aggravate heat stress due to the reduced ability of the pigs to use evaporative cooling (e.g. by panting).
- The upper limit of the thermoneutral zones of pigs is up to 25°C depending on body weight.
- Although pigs can lose some heat via radiation, to do so at higher temperatures, pigs require more space (e.g. to lie in lateral recumbency).



Legal requirements



Council Regulation **EC 1/2005**: Requirements associated with climate comfort are specified in:

- {Articles 3-6}: planning, considering weather conditions
- {Annex I, Chapter II, Article 1}: requirements regarding the vehicle
- {Annex I, Chapter III, Article 2.6}: ventilation

Further requirements addressing climate comfort during long transports (> 8 hours) are given in:

- {Annex I, Chapter VI, Article, 1.2}: bedding
- {Annex I, Chapter VI, Article 3.1}: range of temperature within the vehicle

{Annex I, Chapter VI, Article 3.2}: ventilation

{Annex I, Chapter IV, Article 3.3}: temperature monitoring system

{Annex I, Chapter VI, Article 3.4}: temperature warning system



Note: Listed requirements are paraphrasing the literal text of the regulation and are not comprehensive. Moreover, there might be stricter national legislation in place. For a more detailed description on the specific requirements, see the ["Review of climate control and space allowance during transport of pigs"](#)

Inspection method (recommended)

- Transporter plans transport based on size of vehicle and number and size of animals to be transported.
- During animal transports temperature and humidity should be recorded and records should be made available on request of the inspector. Further, the driver checks animals for signs of panting and/or pumping during stops and at arrival.
- Inspector checks if pigs are panting and/or pumping during stops and at arrival.
- Inspector reports findings to the transporter, and in case of discrepancies between legal requirements and situation during transport corrective actions are taken to ensure the situation complies with legal requirements in the future.

Panting

Panting is defined as breathing in short gasps, i.e. high frequency, shallow breathing, with mouth open. The assessor must score the percentage of pigs which are panting.

Score 0: 0-20% of pigs in the lorry are panting
Score 1: $\geq 20\%$ of pigs in the lorry are panting



Scan the QR code to watch a video of a pig showing panting behaviour.

It is breathing in short gasps, i.e. high frequency, shallow breathing, with mouth open.

Pumping

Pumping is defined as when the pig's breathing is heavy and laboured, and it is easy to see the chest rising and falling with each breath and/or to see movement of the abdominal region. The assessor must score the percentage of pigs which are pumping.

Score 0: 0-20% of pigs in the lorry are pumping
Score 1: $\geq 20\%$ of pigs in the lorry are pumping



Scan the QR code to watch a video of a pig showing pumping behaviour.

This pig's breathing is heavy and laboured, and it is easy to see the chest rising and falling with each breath and/or to see movement of the abdominal region. Besides this pumping behaviour also panting is seen.

Source scoring method: adapted & summarized Welfare Quality® protocol

Assessment of ambient temperature

To check if the basic requirements for pigs' thermal comfort are met, assess the ambient temperature both outside and inside the vehicle. It is recommended to measure the temperatures close to the presumably hottest place in the vehicle, i.e. as far away from the ventilation openings and the expected air flow as possible. Note that a temperature monitoring system needs to be in place for transports > 8 hours.



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