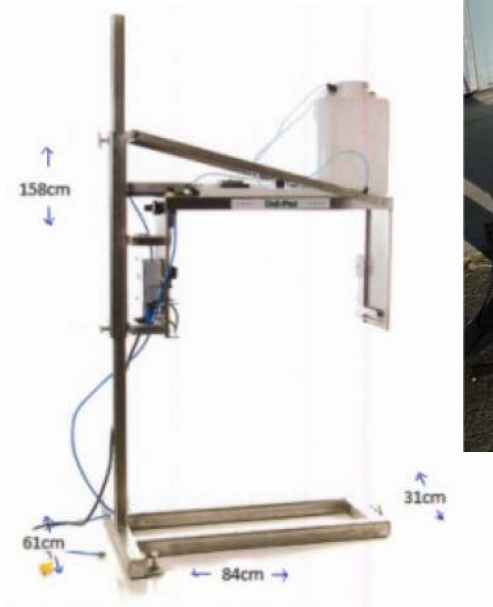




PHARMSURE

Gel-Pac[®]

Gel-Pac[™] hatchery Spray Vaccination



Protection From The Triple Threat



Oxidisers



pH Imbalances



Low Tonicity

- Gel Pac is a 'Gel' delivery system for use in day old poultry as a vehicle for delivering a range of products such as vaccines, competitive exclusion and nutritional supplements.
- The nature of Gel Pac is such that the level and uniformity of product uptake by birds is greatly improved over standard methods of product delivery in the hatchery which utilises water as the vehicle.
- Although referred to as a 'gel', Gel Pac behaves in a very similar manner to water in terms of viscosity, however it cannot be administered via a standard spray nozzle and the product forms distinct 'beads' on birds that facilitate intake by day old birds.

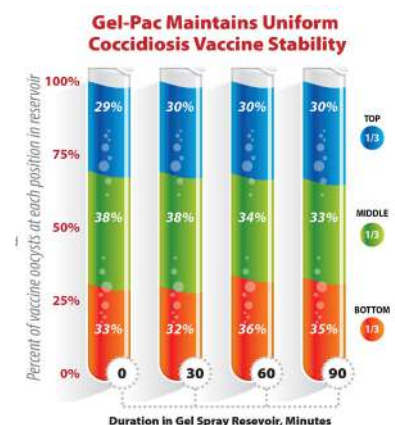


PHARMSURE

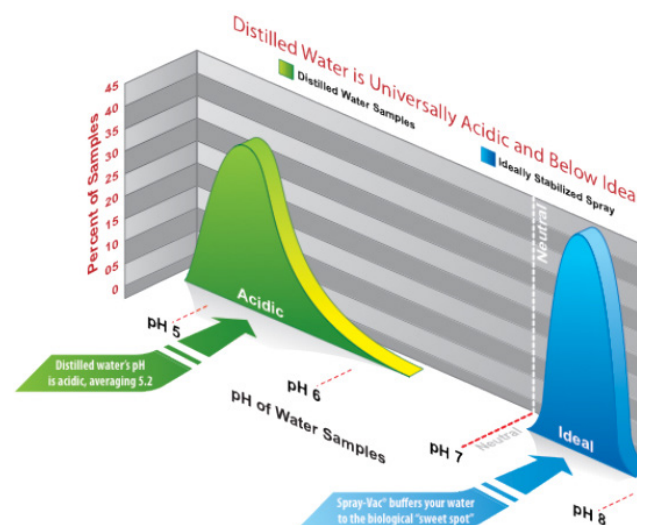


- Gel-Pac® contains a green dye that enhances uptake by birds and causes tongue staining, allowing visual validation of the administration efficiency
- 100% of birds in boxes demonstrate tongue staining after administration of Gel-Pac®
- Dye is apparent in faeces passed by chicks 24 hours after administration providing a further visual validation of product delivery.

- The properties and behaviour of Gel-Pac® are such that the product enhances the uniform uptake of coccidiosis vaccines.
- Oocysts are heavy and vaccines can be seen falling out of solution unless *“Agitate the applicator reservoir regularly throughout application to avoid settling out of oocysts”*
- Gel-Pac not only preserves the biological stability, of live vaccines in tap water, it also protects positional stability in the spray reservoir.



- Many hatcheries use distilled water for day old spray. However, distillation demineralises but does not neutralize pH levels in water
- After distillation, carbonic acid forms which leads to an average pH of 5.2
- So an expensive alternative to tap water, may present an equal danger to vaccines.
- Do not assume that distilled water is ok!





Gel Pac utilises a specially-developed ASP technology that delivers maximum protection against levels of oxidisers far greater than those typically experienced in normal water supplies.

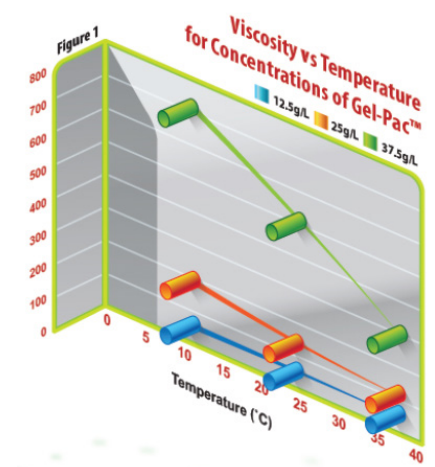
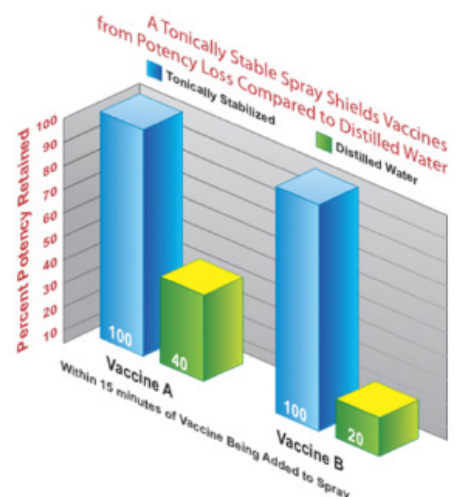
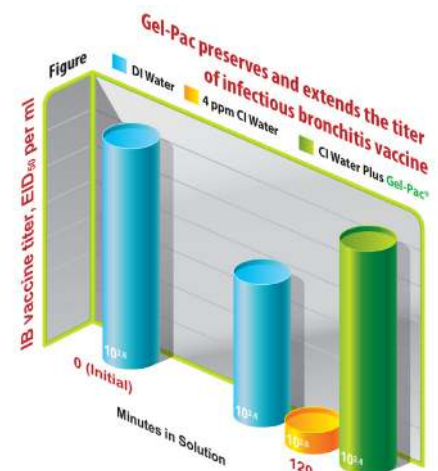
Gel Pac immediately stabilizes water solutions, regardless of whether distilled or tap water, to a more ideal pH level, or "The Sweet Spot," which is key to vaccine survivability.

Tonicity, or osmolarity, is the measure of the solute concentration. When solutions are low in electrolytes, they are referred to as being "hypotonic." In hypotonic solutions, vaccine cells try to adapt by absorbing water through their membranes to balance the electrolytes. This leads to the eventual rupture of the cell – leaving useless vaccine cell debris.

Distilled Water has low tonicity because the distillation removes electrolytes, leading to rapid potency loss in vaccines.

Gel Pac protects the vaccine by correcting the tonicity of the solution and by buffering the cell against excessive potency loss.

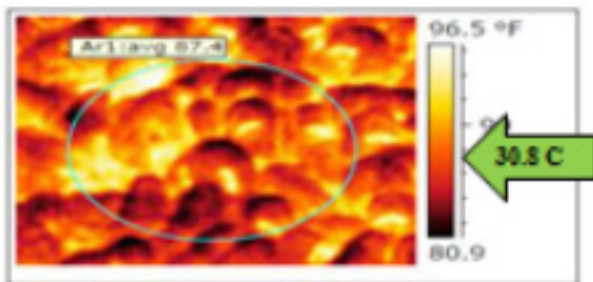
- The temperature of water used to reconstitute Gel-Pac® influences the behaviour of the product. The colder the water temperature used for re constitution, the more readily the GelPac® beads on birds.
- At the optimal usage rate of Gel-Pac® of 25g/litre, the optimal water temperature is between 10°C and 20°C.





Avoiding Thermal Shock

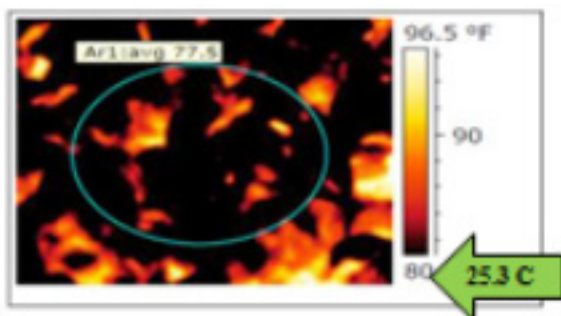
Chicks Prior to vaccination



Conclusion

- Designed for hatchery spray vaccination
1 sachet per 15,000 chicks
- Reconstitute in cold water using a stick blender
- Green dye for tongue staining and green faeces
- Protects the vaccine from sedimentation, tonicity, oxidisers and pH

Chicks Vaccinated via 21 ml Spray



Chicks Vaccinated via 25 ml Gel

