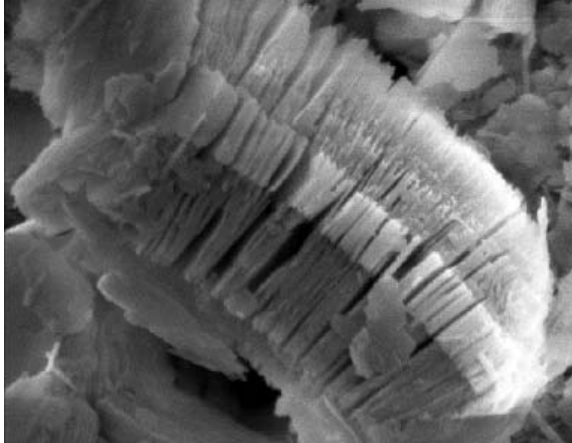
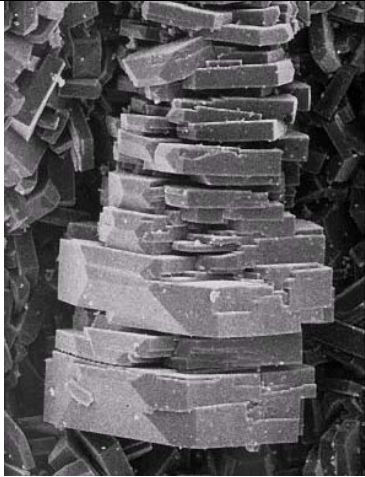


Technical Comparison	SORBATOX	Clinoptilite-Type Binder	What this means in practical terms.
CAS Number	1332-58-7	12173-10-3	
E Number	E559	E567 or E568	
Structure	 <p data-bbox="389 987 779 1075">Natural hydrated calcium sodium aluminosilicate. Precise uniform structure.</p> <p data-bbox="389 1110 607 1142">$(Ca)Al_2Si_2O_5(OH)_4$</p>	 <p data-bbox="983 987 1352 1019">Natural sodium aluminosilicate.</p> <p data-bbox="983 1051 1346 1083">Complex and variable formula.</p> <p data-bbox="983 1110 1435 1142">$(Na,K,Ca)_{2-3}Al_3(Al,Si)_2Si_{13}O_{36} \cdot 12(H_2O)$</p>	<p data-bbox="1597 480 2148 756">Clinoptilites are primarily sodium-based silica whereas Sorbatox is calcium based. Sodium has a smaller atomic weight than calcium and so the structure of clinoptilites is a more tightly compact molecular structure. Therefore clinoptilites are less able to absorb the Fusarium mycotoxins such as Zearalenone and Deoxynivalenol, which have larger molecular sizes than Aflatoxins.</p> <p data-bbox="1597 788 2148 971">Sorbatox has more open yet regular structure. Therefore each batch will give a more selective binding performance, whereas clinoptilites would give a more variable performance and be less selective in its binding properties.</p>
Principle applications	<p data-bbox="389 1177 763 1209">Mycotoxin binder in animal feed</p> <p data-bbox="389 1241 949 1329">A traditional use is to soothe an upset stomach. Until the early 1990s it was the active substance of anti-diarrhoea medicine.</p> <p data-bbox="389 1361 949 1417">SORBATOX is British pharmacopeia standards and is used in kaolin and morphine for humans.</p>	<p data-bbox="983 1177 1547 1265">Used as an ammonia binder in aquatic systems or as a soil treatment to release potassium and ammonia</p> <p data-bbox="983 1297 1559 1449">Use of clinoptilite in industry and academia focuses on its ion exchange properties having a strong exchange affinity for ammonia (NH_4^+). A typical example of this is in its use as an enzyme based urea sensor. It is also used as fertiliser.</p>	<p data-bbox="1597 1177 2148 1233">Sorbatox is very compatible with gut health so much so that it is used for human use.</p> <p data-bbox="1597 1265 2148 1385">Clinoptilites might be better at absorbing ammonia in the feed than Sorbatox. However this cation binding activity also enables binding of nutrient minerals.</p>

Observations	<p>Non-fibrous material tested for dioxin/pcb levels.</p> <p>Kaolinite has a low shrink-swell capacity and is compatible with good pellet quality.</p>	<p>High levels of sodium cations show interference with phosphate nutrition and are therefore of limited value in intensive systems.</p>	<p>Clinoptilites can reduce phosphate availability requiring higher inclusions of feed phosphates or phytase enzyme.</p> <p>Sorbatox has a low shrink-swell capacity it produces a better pellet quality with less breakage, particularly in humid atmospheres.</p>
Binds ions	<p>No evidence that SORBATOX binds in-feed minerals.</p>	<p>A high cation exchange capacity binds minerals in preferential order NH₃-K-Na-Mg-Ca. Activity inactivated by calcium. Clinoptilite also binds the essential micronutrients copper, zinc, cobalt and manganese to a limited extent.</p>	<p>Clinoptilites bind nutritional cations and is inactivated by them. Clinoptilites have been shown to absorb some of the essential micronutrients in the feed potentially reducing the performance of the animal.</p>
Nutritional Claims	<p>Trials prove no absorption of fat-soluble or water soluble vitamins in feed premixes.</p>	<p>Claims not to bind valuable ingredients like vitamins, trace elements, amino acids etc.</p>	<p>Sorbatox has independent trials data to prove no absorption of nutrients</p>
Medications	<p>Tested over many years and only found incompatible with Tilimicosin.</p>	<p>Claims not to absorb pharmaceutical products. However, there is no interaction with Tetracycline or Chloramphenicol, metronidazole and sulfamethoxazole but in vitro tests show adsorption of aspirin, thyophiline, propanolol and Phenobarbital.</p>	<p>The research we have found on some clinoptilites contradicts the claims they make that clinoptilites don't absorb pharmaceutical products.</p>
Recommended dosage	<p>1-2.5 kg/t of feed - preventive dose 2.5-5 kg / tonne of feed - in the presence of mycotoxins.</p>	<p>1 - 3 kg/t of feed - preventive dose 3-5 kg / tonne of feed - in the presence of mycotoxins</p>	<p>Very similar</p>
Appearance Moisture Specific mass	<p>White with no smell 7 – 8% 2.60g/cm³</p>	<p>Grey with no smell 7.3% 2.39g/cm³</p>	<p>Very similar</p>
pH	<p>4.9 – 5.4</p> <p>Compatible with acidifiers and a healthy gut</p>	<p>6.9 – 7.1</p> <p>Neutralises gut acidity and feed acidifiers</p>	<p>This is very important; clinoptilites neutralize natural gut acidity and feed acidifiers such as Deviguard. Sorbatox is complementary to acidifiers and a healthy gut that's why it is part of our range.</p>