

## Clostri Shield® BCD

*Clostridium Perfringens* Type C and D Bacterin Toxoid

For use in healthy cattle and sheep as an aid in the prevention of enterotoxemia caused by *Clostridium perfringens* Types B, C, and D. Although *Cl. perfringens* Type B is not a significant problem in North America, the combination of *Cl. perfringens* Type C (beta) and Type D (epsilon) fractions may protect against enterotoxemia caused by *Cl. perfringens* Type B.

**Product Number**

**Clostri Shield® BCD**  
266 - 100 mL

- **Dual Purpose** — Clostri Shield BCD can be administered to cattle and sheep.
- **Safe** — Clostri Shield BCD can be administered to pregnant cows and ewes.
- **Flexible** — Clostri Shield BCD can be administered to animals of any age followed by a booster in 21 days.

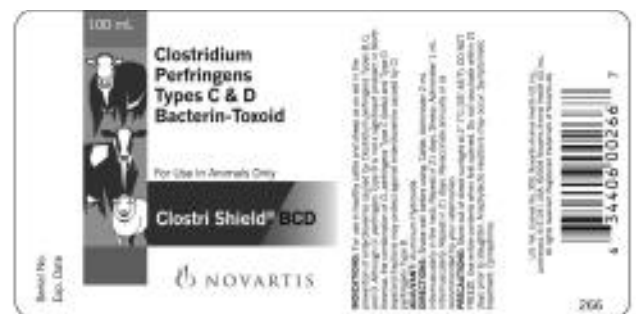


## Clostri Shield® BCD

**ADJUVANT:** Aluminum Hydroxide.

**DIRECTIONS:** Shake well before using. Cattle: Administer 2 mL intramuscularly in the neck. Repeat in 21 days. Sheep: Administer 1 mL intramuscularly. Repeat in 21 days. Revaccinate annually or as recommended by your veterinarian.

**PRECAUTIONS:** Store out of direct sunlight at 2°-7° C (35°-45° F). DO NOT FREEZE. Use entire contents when first opened. Do not vaccinate within 21 days prior to slaughter. Anaphylactic reactions may occur. Symptomatic treatment: Epinephrine.



**Customer Service**  
**(800) 843-3386**

[www.livestock.novartis.com](http://www.livestock.novartis.com)

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## Technical disease information

### *Clostridium perfringens*

*Clostridium perfringens* is a common soil inhabitant and is also often found in the intestines of healthy animals. Under favorable conditions, bacteria in the intestines grow rapidly and produce the toxins that cause the various disease symptoms. There are five known types of *C. perfringens*: A, B, C, D, and E.

*Clostridium perfringens* Type B causes lamb dysentery, and it can also affect calves less than three weeks of age. Symptoms include sudden death, listlessness, recumbency, abdominal pain, and a fetid diarrhea that may be blood-tinged. On post-mortem, intestines show severe inflammation, ulcers, and necrosis. The mortality rate approaches 100 percent. *C. perfringens* Type B is not common in North America, but is frequently found in parts of Europe, Africa and Asia.

*Clostridium perfringens* Type C causes an acute hemorrhagic enteritis (enterotoxemia) in calves and lambs less than two weeks old and also in older cattle and sheep on full feed. Affected newborn animals are often from dams producing an abundance of milk. Overfeeding can cause changes in the gut environment that enhance growth and toxin production by the organism. Clinical signs include sudden death, abdominal pain, depression, and possible central nervous system involvement (such as convulsions and coma). The mortality rate is high and young animals that do survive are often permanently stunted. Post mortem signs are dependent on the relative amounts of alpha and beta toxins produced by the bacteria and on the duration of the disease. If alpha toxin predominates, the intestines will be hemorrhagic. If beta toxin predominates, there will be evidence of stomach and intestinal necrosis and peritonitis.

“Overeating disease” is caused by *Clostridium perfringens* Type D. The disease is more common in sheep but more economically important in cattle. It can affect both young animals and feeders. The disease is often seen in single lambs under three months of age that are nursing high-producing ewes. In feeder lambs and calves, high concentrate rations, especially if introduced suddenly to an animal accustomed to forage, will cause an abrupt pH drop in the rumen. Fermented grain then passes into the small intestine, where the Type D organisms multiply and produce alpha and epsilon toxins. The alpha toxin must be activated by trypsin in the small intestine. It then causes necrosis and increased vascular permeability, which results in hemorrhage and edema. Initially there is central nervous system stimulation followed by soft foci and liquefaction necrosis in the brain. Clinical signs include sudden death, convulsions, posterior paralysis, coma, and possibly diarrhea. At necropsy, the rumen is full of concentrate feed and may have petechial hemorrhage. There may be excess pericardial fluid, lung fluid, and excess fluid in parts of the small intestines. Often tissues decompose rapidly, which explains why the disease is sometimes called “pulpy kidney” in sheep.

Novartis provides **Clostri Shield BCD**, a bacterin-toxoid that gives coverage for these three strains of *Clostridium perfringens*. Vaccination against these diseases is the economical, effective way to combat them, since treatment of affected animals is usually futile with death as the outcome.