Reversal Protection on Energizer Alkaline Batteries, C and D sizes

What is battery reversal protection?
The reversal protection on the negative end of the Energizer battery prevents an electrical contact between the negative ends of a reversed battery and the battery next to it. The reversed battery cannot be charged because the electrical circuit is interrupted.

Why is Battery Reversal Protection important?
When a battery without reversal protection is installed in reverse in a device (e.g. boom box) with 3 or more other batteries and the device is turned on, the device will likely still run (e.g. play music). While the device is running, the incorrectly-installed battery will be charged by the remaining batteries. Charging an alkaline battery is an abusive action, and all alkaline batteries are designed to vent under these conditions to minimize internal pressures. When a battery vents, there is a strong possibility for leakage. Warnings to avoid this specific type of battery misuse are included on many branded battery packages as well as general consumer literature. The following excerpt is from a U.S. Consumer Product Safety Commission (CPSC) pamphlet regarding household batteries.

How does Battery Reversal Protection work?
Energizer Max C and D size alkaline products have a non-conductive coating ring on the negative contact. The coating can be seen under a UV light.

Is Energizer the only company with reversal protection?
No. However, Energizer is the only major North American manufacturer with reversal protection in its C and D size alkaline branded retail products.

Why don’t all companies have reversal protection?
Energizer cannot speculate on why specific companies have not chosen to add this safety feature to their product line. Reversal protection design and implementation does have several challenges.

1) Reversal protection adds significant development costs and manufacturing costs to the battery.
2) A small fraction of devices on the market use flat contacts for the battery holder. These flat contacts will not operate with a battery using reversal protection.
3) There are multiple methods to achieve reversal protection and each has its own challenges in terms of manufacturing quality and repeatability.