Stability of NDURE® DCD

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NDURE® DCD, a proven nitrogen stabilizer, slows the conversion of ammoniacal nitrogen to nitrate nitrogen by inhibiting the first reaction mediated by *Nitrosomonas* nitrifying bacteria.

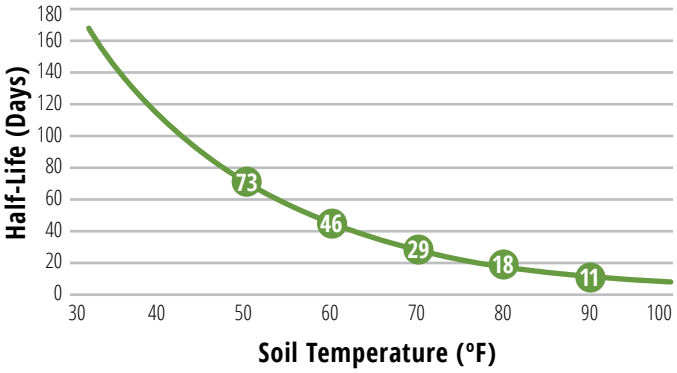
NH_4 *Ammonium* → NO_{2-} *Nitrite* → NO_3 *Nitrate*

Retaining nitrogen in the ammonium form reduces the potential for losses caused by leaching and/or denitrification. But how long does this stabilization persist?

DCD, being a carbon-based organic molecule, is subject to microbial decomposition and therefore it's breakdown is a temperature-dependent process. The graph below presents the expected half-life of DCD based on prevailing soil temperature.

STABILITY OF DCD AS IMPACTED BY SOIL TEMPERATURE

As can be seen from the data that as soils heat up, DCD half-life decreases but there is still plenty of protection even in the warmest of soils.

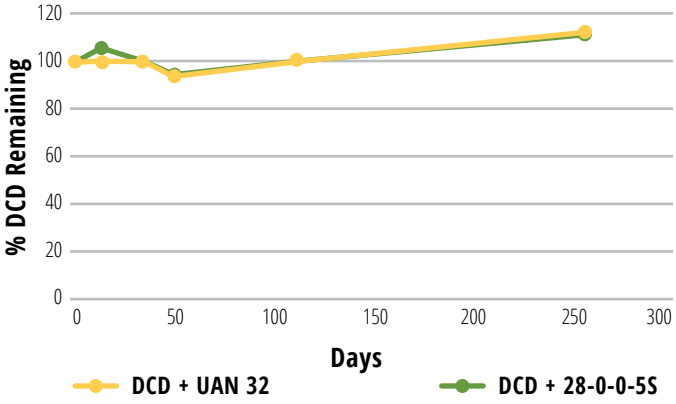


Summary review of multiple published studies by Keliher et al., 2008

A related question that is sometimes asked is how stable is DCD when blended into liquid fertilizers containing UAN? We reached out to the scientists at Koch Agronomic Services who provided the following data summary.

LONGEVITY OF DCD IN FERTILIZER SOLUTIONS

Since the breakdown of DCD is via soil microbes and not based on exposure to liquid fertilizers, the stability of DCD is basically indefinite when added to fertilizer solutions. In these studies, 100% of the original amount of DCD added to UAN or 28-0-0-5S was recovered up to a full year after mixing. However, there is one important caveat to this. DCD should not be added to acidic fertilizers as the stability will be compromised and half-life will be decreased. For the pH ranges typically found in most UAN fertilizers of 6.5 or greater, the stability is basically indefinite.



So, whether adding to a branch blend to stabilize the urea and ammoniacal nitrogen or premixing into TILL-IT® blends containing DCD, you can rest with comfort that the DCD component will be as active months down the road as it was the day the fertilizer was manufactured.

TILL-IT®

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