

Specific Gravity and pH Effects On UAN Blending

In the past, UAN composition was fairly uniform and unanticipated blending issues were relatively infrequent. That has changed, however, and variations from load-to-load and supplier-to-supplier are more common. And variations in pH and specific gravity (density) can wreak havoc on your UAN blending processes. Reasons for the variations in UAN composition vary, but it is prudent to be aware of what you are dealing with so that you can produce a viable end .

Summary Points

- There are often variations in pH and specific gravity of UAN by the time the product reaches the dealer - which can affect compatibility
 - There may be a relatively broad range of urea to ammonium nitrate ratios in making UAN solution depending upon the specific producer and the time of year which may affect compatibility .
 - The overall solubility of UAN and APP when directly blended together (no additional water) – especially during times of the year when product and air temperatures are cold - affects compatibility.
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UAN (32-0-0) & APP Compatibility Issue, spring 2012.



Conclusions

It is recommended two tests should be used to determine potential formulation issues with UAN, especially in late-winter to early-spring when product temperatures may be very cold. The first is the use of a hydrometer to check specific gravity (estimates N content) and the second is testing the pH with a properly calibrated pH meter. This important information allows the user to be aware of composition variations in advance so that adjustment can be made when co-mingling with other products.

While some variability in the specific formulation of UAN has been around since the initial development of the UAN industry, the increased reliance on imported product has exacerbated this variability and subsequent compatibility issues. It seems to occur more often with unseasoned personnel or when not enough volume is in the storage tanks to minimize ratio variations and/or free ammonia and product is shipped out immediately. In the past, some manufacturers of UAN have had UAN summer blends and UAN winter blends, seasonally altering the ratios of urea to ammonium nitrate. Take time to familiarize yourself with the product you are receiving.

Michael Orr is President of Specialty Process Consulting, LLC in Pocatello, ID

Dr. Leikam is President of the Fluid Fertilizer Foundation in Manhattan, KS

Full paper is available from the Fluid Journal archives: <http://www.fluidjournal.org/all2013/W13-A3.pdf>

