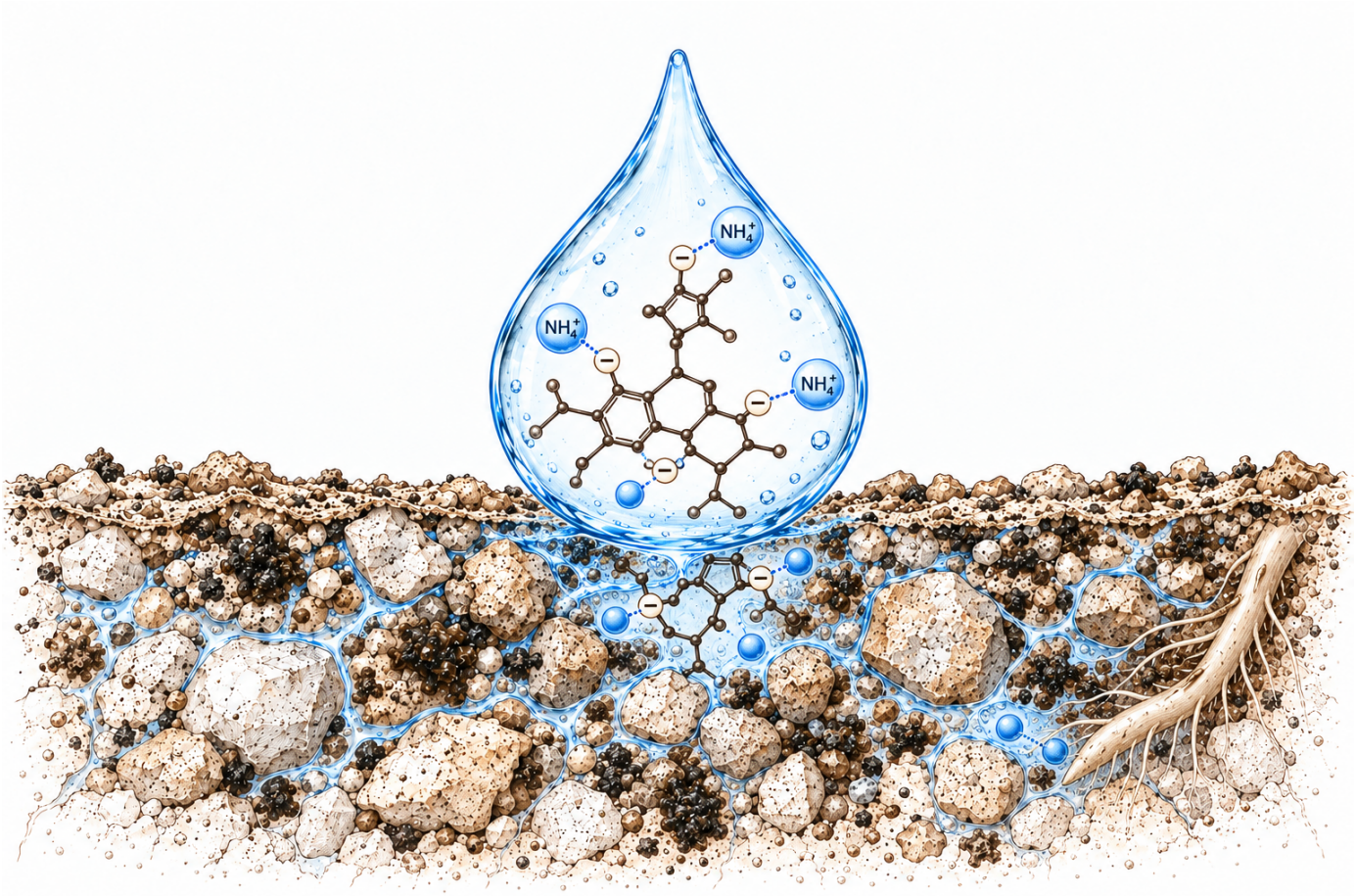
AUSTRALIAN-MADE SULFONATED HUMATE

ADSORB

Keep nitrogen within reach.

Investigating nitrogen leaching reduction.

For liquid fertiliser programs | Locally produced in Australia



THE IDEA: HOLD NUTRIENTS WHERE ROOTS CAN REACH THEM

Humate can hold positively charged nutrients such as ammonium. Nitrate behaves differently: it moves with water. The illustration shows the idea, not an exact ADSORB molecule.

36% more root-zone nitrate

Reported at Munglinup: 2 L/ha ADSORB on gravel soil in canola, after 100 mm of rain in one event. Also reported: 120 ppm more calcium.

LOCAL FIELD OBSERVATION

After 100 mm of rain.

At Munglinup, Western Australia, ADSORB was applied at **2 L/ha** to canola on gravel soil. After a single **100 mm rainfall event**, Wilchem reports these root-zone soil-test differences:

+36%	+120 ppm
root-zone nitrate	root-zone calcium

Why it matters

Heavy rain can carry nitrate below crop roots. Finding more nitrate in the root zone afterwards is an encouraging observation for a liquid nitrogen program.

What the result tells us

More nitrate was reported in the sampled root zone. This does not mean 36% less nitrogen leached, or that yield increased. Those outcomes need separate measurements.

Use the trial rate as a reference

The reported rate was 2 L/ha. It gives a useful starting point for further local comparisons, rather than a proven rate for every soil and UAN program.

Source: Johan Potgieter / Wilchem, reported 16 October 2026. Comparison treatment, fertiliser inputs, sampling depth and timing, test methods and replication still need confirmation. The 36% result has not been converted into a UAN saving.

WHY ADSORB IS DIFFERENT

Humate - with modified chemistry.

ADSORB is a sulfonated humate. It starts with humic material, then chemical modification changes parts of its molecular structure. It keeps its humic foundation while gaining additional sulfonate groups.

Conventional humate	ADSORB: sulfonated humate
A mixture of humic compounds, with natural sites that interact with nutrients.	A modified humic material with added sulfonate groups. The molecules differ from the starting humate.
Mixing behaviour varies with the source, pH and fertiliser salts.	Sulfonation can change how the material behaves in water and fertiliser. Suitable processes can improve solubility in acidic mixes. [5]

Different chemistry. Familiar humate jobs.

Modified humates can still hold positively charged nutrients and interact with dissolved metals. These are humate-like functions. The modification changes how the material behaves; it does not turn it into an entirely unrelated product.

What does adsorption mean?

It means a substance collects at a surface. Think of nutrient ions associating with sites on humate, rather than a sponge soaking up liquid. Ammonium and calcium carry positive charges; nitrate carries a negative charge and behaves differently. [1]

For your tank mix

Check the actual ADSORB and fertiliser combination before use. Better mixing or stronger nutrient retention should be demonstrated on the finished product, rather than assumed from the word humate.

The molecular artwork is simplified. Humates are mixtures, not one fixed molecule. The reference describes modified-humate chemistry generally; it is not an ADSORB manufacturing specification. [5]

MATCH THE PADDOCK AND THE PROGRAM

Use CEC alongside UAN litres.

CEC is a soil test for the ability to hold positively charged nutrients. It helps describe ammonium retention. It does not directly measure how much nitrate the soil will hold. [1]

Look at	What it means for your program
Soil CEC and texture	Use your soil tests by depth. Low water-holding soils can be more exposed to nitrate leaching.
Rain and drainage	Consider how much water is likely to move below the roots after application.
UAN litres per hectare	Use litres of UAN product, not the water added to the tank. Confirm the nitrogen analysis.
Crop stage and root depth	Match nitrogen supply to crop demand and the depth roots can reach.

A practical way to develop rates

Express ADSORB as litres per 100 L of UAN, then test that ratio across different soils, UAN rates and rainfall conditions. The Munglinup observation gives a 2 L/ha field reference, but the UAN rate in that trial has not yet been supplied.

Keep the basics working

Timing, placement and split nitrogen applications still matter. Do not assume a few litres of humate will change the CEC of the whole soil profile or replace good nitrogen management.

A general CEC-to-ADSORB rate chart is not yet established. Confirm product directions, crop safety and tank-mix compatibility with your Wilchem representative.

ILLUSTRATIVE SAVINGS - NOT A TRIAL RESULT

What could less leaching be worth?

30% less leaching means saving 30% of the nitrogen that would otherwise be lost. It does not mean saving 30% of all the UAN applied.

Example: apply **100 L UAN/ha**. If 20% of its nitrogen would leach, reducing that loss by 30% retains nitrogen equal to **6 L UAN/ha**. At 0.422 kg N/L UAN, that is **2.53 kg N/ha**. [2]

UAN applied L/ha	Assumed N loss without ADSORB	UAN equivalent retained L/ha	Value at $1/L UAN
100	10%	3	$3/ha
100	20%	6	$6/ha
100	30%	9	$9/ha
200	20%	12	$12/ha
200	30%	18	$18/ha

Does it cover the treatment cost?
Assume ADSORB costs $4/L and is applied at 2 L/ha: **$8/ha**. With no extra application cost, a $12/ha retained-N value leaves $4/ha above treatment cost; an $18/ha value leaves $10/ha. At $6/ha retained value, it does not cover the $8/ha cost.

Use your prices and your paddock risk
Retained UAN equivalent = UAN litres x expected loss fraction x 0.30.
Multiply by your UAN $/L, then subtract ADSORB and any extra application cost.

All prices and loss reductions here are hypothetical. The value assumes the crop can use all extra retained N; actual benefit may be lower. This is not a measured profit or a recommendation to reduce UAN rates. Do not add retained-N value to a fertiliser saving for the same nitrogen.

MORE INFORMATION

Bring the evidence to your paddock.

Start with a fair comparison

Keep fertiliser inputs the same in treated and untreated strips. Record soil type, ADSORB rate, UAN rate and rainfall. Use matched sampling depths and dates. Measure crop uptake and yield as well as soil nutrients.

To measure leaching

Test both the amount of drainage water and its nitrogen concentration. More nitrate in a soil sample is useful information, but it does not tell us on its own how many kilograms of nitrogen were saved.

International work

Borregaard reports reduced leachate nitrate in a California broccoli trial with a sulfonated humate ingredient. Its public presentation does not provide a full nitrogen-loss balance. This is supporting context, not an ADSORB result. [3,4]

Sources

[1] University of Minnesota Extension. Understanding nitrogen in soils. Ammonium, nitrate and leaching processes. [Open source]

[2] Summit Fertilizers. Liquids: UAN analysis and volume conversions. [Open source]

[3] Borregaard. Activance NUE technical presentation, BWC 2025, slides 8-9. Manufacturer-reported uptake and leaching evidence. [Open source]

[4] Borregaard. Activance NUE product page; sulfomethylated, sulfonated potassium humate identity. [Open source]

[5] Detroit et al. Production of acid soluble humates. US5663425A (1997). Process-specific evidence for chemically modified humates; not an ADSORB specification. [Open source]

The following application-partner page is reproduced from the Furrow Master brochure. It shows FurrowMSA liquid equipment and the Wilchem ranges. Its Furrow Master placements are not a general ADSORB application recommendation.

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For all in-furrow liquid options, visit **www.wilchem.com.au** or speak with your **Wilchem representative.** Application methods vary by product.