

# Liquid methionine - value and application in the feed mill

*Liquid methionine is an easy to use product with practical benefits, well suited to medium and large size feed mills.*



**EL MEHDI EL OUAHLI\*** presents data from feed mills around the world showing the practical and technical benefits of liquid methionine.



**M**ethionine is an essential amino acid for all animals and must be provided as a nutritional feed additive. It is available on the market in dry or liquid form. Adisseo's liquid methionine (OH-Methionine, Rhodimet AT88, hereafter called 'liquid methionine'), has been developed to better match the production capacity and important level of automation of today's medium and large-sized feed millers and integrators. The benefits of using liquid methionine are multifold. It provides more flexibility in the process and less dust emission. There is also a big efficiency win as there is reduced product handling (handling IBCs require less time than emptying bags for the same quantity of additives).

## **Liquid methionine applicator design and maintenance**

We support customers to design the appropriate applicator, then provide training on liquid application, recommendations and ensure

knowledge transfer to customers. Maintenance is another aspect of services that can be provided.

Feed additives represent a small part of the feed formulation, but their impact on feed price is high. You therefore want to dose them as accurately as possible. Proper application of feed additives is measured by recovery and homogeneity. Homogeneity can be tested by taking samples after the mixing process and calculating the Coefficient of Variation (CV). This should be below 10%. The recovery is confirming if the targeted additive quantity is present in the feed, it is expected to be between 90% and 110%.

## **Homogeneity and recovery of liquid methionine**

In 2009, Adisseo developed the "Mixer profile" to work closely with its customers to apply properly liquid methionine on their mixing lines based on spraying performances measured by CV% (homogeneity)

and liquid methionine recovery consistency.

Before applying liquid methionine in the mixer, engineers check the applicator dosing accuracy through "bypass test" aiming to validate the dosing applicator performance versus the dosing set-point prior to utilization in feed production.

The set-point liquid dosed volume is diverted to an empty container on a platform scale to check the difference between the requested quantity and the actual dosed. Once the results satisfy the requirements, engineers move to test the spraying performances. The test conditions must be representative of the plant's chosen manufacturing practices. This method is made up after setting up the test objective, checking trial conditions, agreeing on dosing parameters, applying it to the feed mixture, mixing the whole ingredients, taking required samples, checking recovery, interpreting collected data and intervening if required.

For these regions, the median CV & recovery of liquid methionine are within the expected levels, which confirms that the application is generally properly made (Table 1).

History of mixer profile results confirms that CV and recovery medians are improved over time since 2015, as a result of increased equipment installed and supported by our DIM (Design Implement Monitor) program and in relation with our regional resources (Figure 1).

**Table 1: Mixer Profiles Results for Asia Pacific, North America, Middle East, Africa, and Europe (collected from 2009 to 2021).**

	Total areas
Mixer Profiles number	486
Median CV%	6.8%
Median recovery %	98.8%

### Liquid methionine - other values in the feed mill

Mixing performance is one of the key parameters for feed quality, there are also other benefits that help to decide to go for liquid feed additives. As liquid methionine comes in IBCs, there are no more bags to dispose of. Empty IBCs and drums can be collected by producers for free or can be sold. There is also an environmental impact reduction in the feed processing itself, as there are differences between liquid and dry forms of methionine regarding energy consumption for pellet production. This step is an energy-guzzling part of feed production. If we can optimize this step, it can lead to significant cost savings. Trials conducted by Tecaliman in France (2016 and 2020), showed that the addition of liquid methionine may lead to power savings of up to 13%, compared to the powder form, without losing pellet hardness or durability.

### Conclusion

While liquids are already a major

part of the daily routine of feed mills and are gaining more interest, the decision to move from dry to liquid methionine should always be backed up by data, and the results and costs should be at least the same or better than using powder forms. Recovery and homogeneity of liquid methionine should therefore be assessed on a regular basis to detect deviations if any and propose corrective actions, as well as maintenance programs, to reach the desired quality target. The liquid methionine has been specifically developed for its high efficiency in both methionine values and application. The considerable number of studies and data gathered from feed mills have confirmed the mixing performance, alongside beneficial assets. **AF**

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**Figure 1: Median of CV (Europe, MEA, North America and Asia Pacific).**

