

DDGS is used as Livestock feed due to its high protein content that acts as a nutritional source for them. DDGS from Maize is golden yellow in colour that is considerably more acceptable in the market while rice DDGS have brown to blackish in appearance, which considered as low quality and nutritional loss due to caramelisation.

Majority of the grain industries are using rice as the raw material to produce ENA as India, being the largest producer of rice in the world. To overcome on this appearance and quality issue of rice DDGS, we have introduced a unique product termed as "ProColor-TS", which is a new bio-innovation based solution for colour enhancement of Rice DWGS and DDGS.

Catalysts R&D Centre developed this innovative formulation for enhancing the colour of Rice DDGS to match the same with the colour of Maize DWGS and DDGS that is golden yellow.

ProColor-TS is an inimitable combination of essential elements like phosphate, calcium and other salts belongs to the family of Pyrazolecarboxylate and naphthalene sulfonate. These salts not only provide rice DDGS an attractive golden yellow appearance like maize DDGS rather it also enhances the nutritive elements like phosphorus & calcium, which makes DDGS more suitable for animal feed.

These available salts acts in combination with insoluble grain components and gets adsorbed on their surface which gives desirable golden yellow appearance without altering the original quality and smell of DDGS.

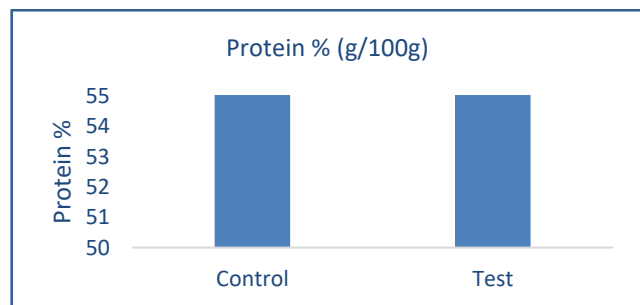
These available salts also help to increase the calcium & phosphate content by some extent in the final DDGS. This would be resulting in reduction of DCP consumption during the feed preparation using this treated DDGS.

PRIMARY BENEFICIARY FUNCTION

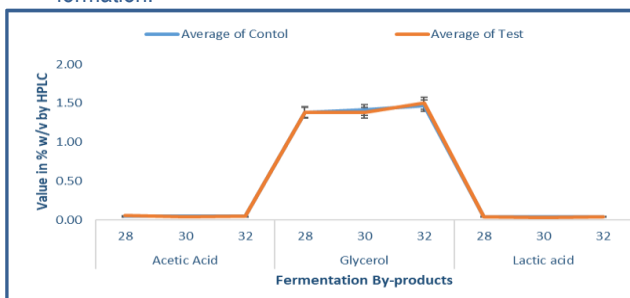
- ✓ Rice DWGS and DDGS colour enhancement to that of golden yellow like Maize DWGS and DDGS



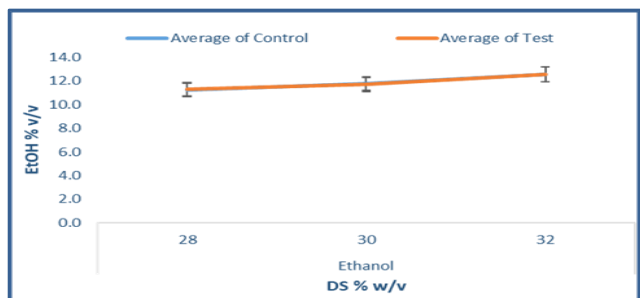
- ✓ Nutritive value of DWGS and DDGS remains intact.



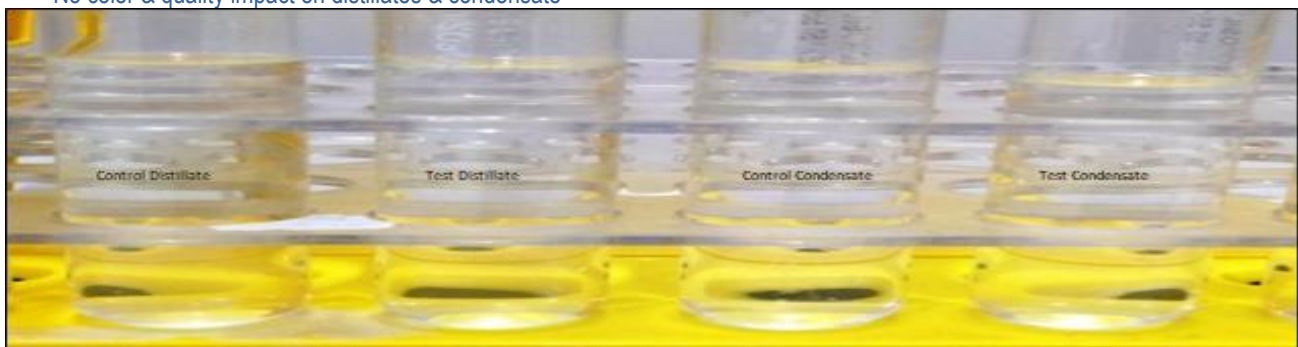
- ✓ No adverse impact on Fermentation By-products formation.



- ✓ No adverse impact on ENA/Spirit quality and yield



- ✓ No color & quality impact on distillates & condensate



- ✓ Product complies with feed and food grade specification.

- ✓ Biodegradable and eco-friendly product

PRODUCT APPLICATION

ProColor-TS is certified food and feed grade product that can be added into beer well/fermenter after fermentation ceases. It will not show any adverse impact on the final organoleptic properties of ENA/spirit, PRC/RC Leese, and condensate. Product dose may vary depending upon final colour desired. It is recommended to start with dosage of 60 ppm on wash volume followed by dose optimization.

PRODUCT CHARACTERISTICS

Product Composition	Desired chemical salts
Appearance	Pink colored powder
LOD at 135°C	NMT 13 %
Solubility	Soluble in water
pH of 0.1% Solution	5.9 - 6.9

PRODUCT DOSING

Dose	60 ppm* on fermented wash
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*Dose may vary depending on the final colour requirement of DWGS and DDGS

PRODUCT OPERATING PARAMETERS

Temperature	25 - 50°C
pH	3.5 - 6.5

PACKAGING

HDPE Drums	25 kg packing (1 kg Aluminium foil x 25 No's)
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PRODUCT STORAGE

At Room Temperature	Minimum shelf life of 24 months
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PRODUCT HANDLING

- May cause an allergic skin reaction.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- In case of inadequate ventilation wear respiratory protection.
- Contaminated work clothing should not be allowed out of the workplace.
- Ensure adequate ventilation.
- Use personal protective equipment as required.
- Avoid dust formation.
- Keep in a dry, cool, and well-ventilated place.
- Refer product specification and/or product label for specific storage temperature requirement.
- Keep container tightly closed.
- Keep away from water or moist air.
- MSDS is supplied with the product.
- Follow MSDS safety instructions for more details.