

VARAN® ESA

Varan® ESA is foundry bentonite modified using *Extended Surface Area* technology to provide higher Wet tensile Strength to the system sand.

The thermal resistance is impressively high to maintain all the necessary values even when exposed to 550degC for standard 30 minutes and higher (see chart below)

Regular use of this product will transpire in having lower dead clay percentage in system sand and lower bentonite consumption.

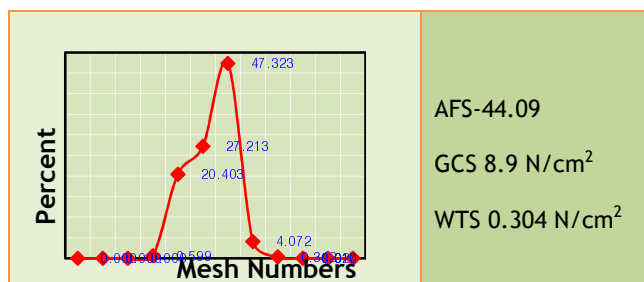
Moisture addition will always be under control due to less dead clay and this will help gain a good compactibility.

Product Features:

- ❖ Excellent WTS ensures reduction in scab related defects with each cast
- ❖ Higher thermal resistance gives best of “shake-out” sand and reduces dead-clay percentage in the system sand
- ❖ Lower consumption of bentonite on continuous usage

Technical Specification: -

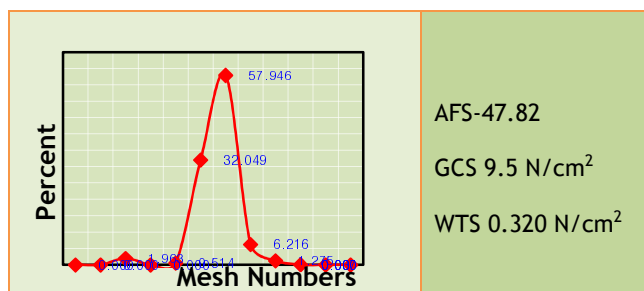
Free Swelling Volume	35-45ml
Moisture	12% max
pH (3% dispersion)	9-10
Methylene Blue adsorption	390-410 mg/gm
Green Compressive Strength	9.5-11.5 N/Cm ²
Green Compressive Strength (after Calcination)	7.5-8.5 N/Cm ²
Wet Tensile Strength	0.27-0.32 N/Cm ²
Wet Tensile Strength (after Calcination)	0.170 - 0.184 N/Cm ²
Compactibility	45% min



AFS-44.09

GCS 8.9 N/cm²

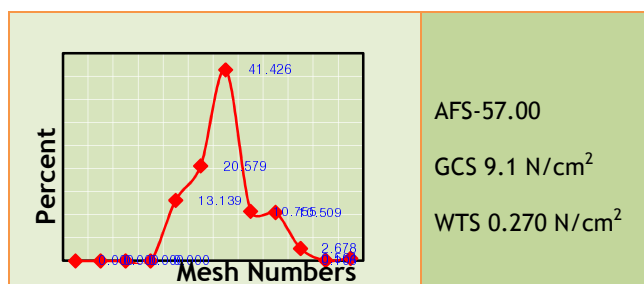
WTS 0.304 N/cm²



AFS-47.82

GCS 9.5 N/cm²

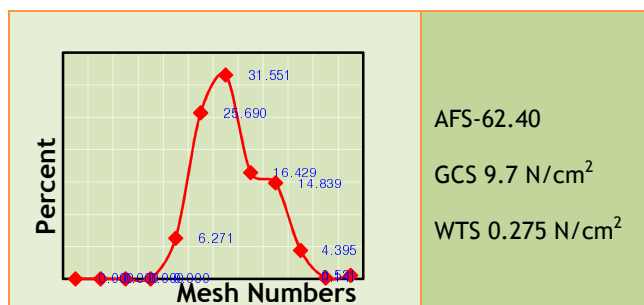
WTS 0.320 N/cm²



AFS-57.00

GCS 9.1 N/cm²

WTS 0.270 N/cm²



AFS-62.40

GCS 9.7 N/cm²

WTS 0.275 N/cm²

The normal values of WTS & GCS depicted in the table on different Sand AFS.

All test done on Simpsons WTS machine model 42112-M and the standards as per VDG P69

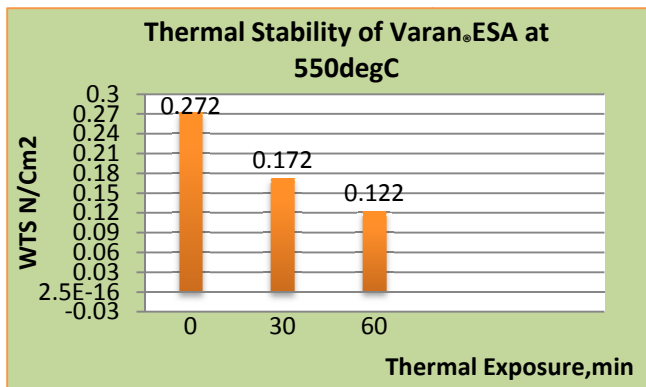
Technical Advantage:

Varan® ESA provides a minimum WTS value of 0.30 N/cm² min on simple addition of 5% on new sand of AFS 45-55 which is among the highest as per industry standards. Higher WTS in the system sand is always desirable to prevent scabs and related defects. Regular use on the system sand reduces the dead clay percentage and less moisture is required to achieve the green sand moulding properties.

Thermal Stability:

Effect of temperature on WTS:

Varan® ESA can withhold its strength upon expose to high temperature which is most demanding in green sand for better shake out.



The graph shows the data when Varan® ESA is exposed at uniform temperature of 550degC with variable time span. Despite continuous exposure to heat, the Wet Tensile Strength is maintained.

Chemical Composition (Analysis):-

Silica as(SiO ₂)	43% - 55%
Alumina as(Al ₂ O ₃)	14% - 18%
Iron as(Fe ₂ O ₃)	7% - 14%
Calcium as(CaO)	2% - 5%
Magnesium as(MgO)	1% - 2.5%
Sodium as(Na ₂ O)	1.8% - 3%
Potassium as(K ₂ O)	0.03% - 0.3%

Particle Size Analysis: -

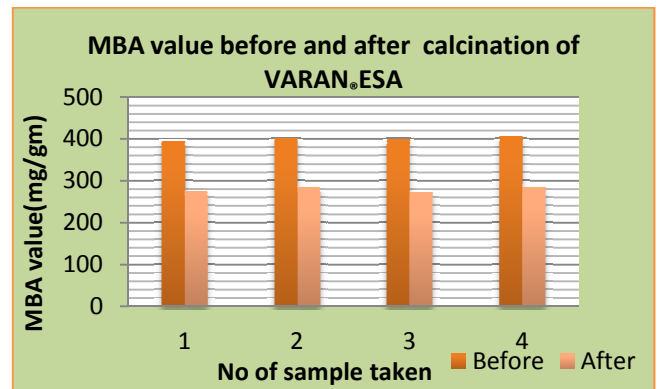
#200 Mesh Passing through	80% min
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Effect of temperature on MBA value:

Standard as per VDG p69

The following test was carried out on four different Varan® ESA production sample after calcination at 550degC temperature for 30mins.

It is seen that the rate of thermal degradation in Varan® ESA is in the range of 20%-30%.



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