

Processing Aids: Beer Stabilization

Nalco 1072 kieselsoil is a liquid colloidal suspension of silicon dioxide, which is extremely effective in chillproofing and has been used in production of “vegan-friendly” beers. The resulting silica/protein complexes form relatively compact sediment cakes (tank bottoms) that aid in separation from the stabilized beer. Nalco 1072 is a ready to- use solution that offers convenience in use.

- Particle Size:** ~ 8 nm
- Dose Rate:** 60-2400 ppm
- Contact Time:** ~ 8 hr
- Sizes:** 55 USG polydrums



Preparation of Stabilizers

*Nalco 1072 is sensitive to cold temperatures. These solutions come ready-made and can be added as described in the dosing section below.

Dosing of Stabilizers

Inline Method: Slurry is dosed proportionally into the beer stream by means of a metering pump. The products are allowed to react with the beer. Depending upon contact time required for each product a buffer tank may be utilized. Resulting sediments should be removed by filtration.

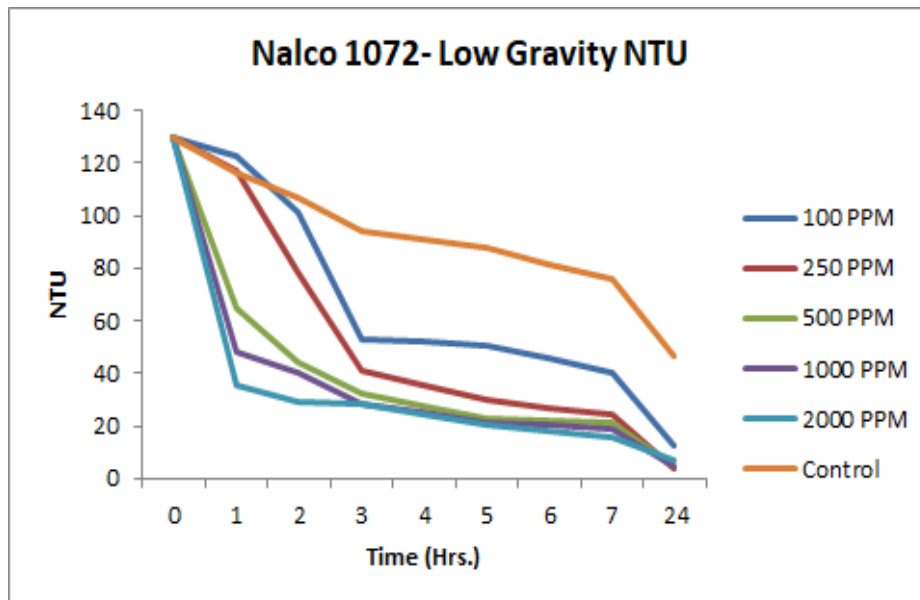
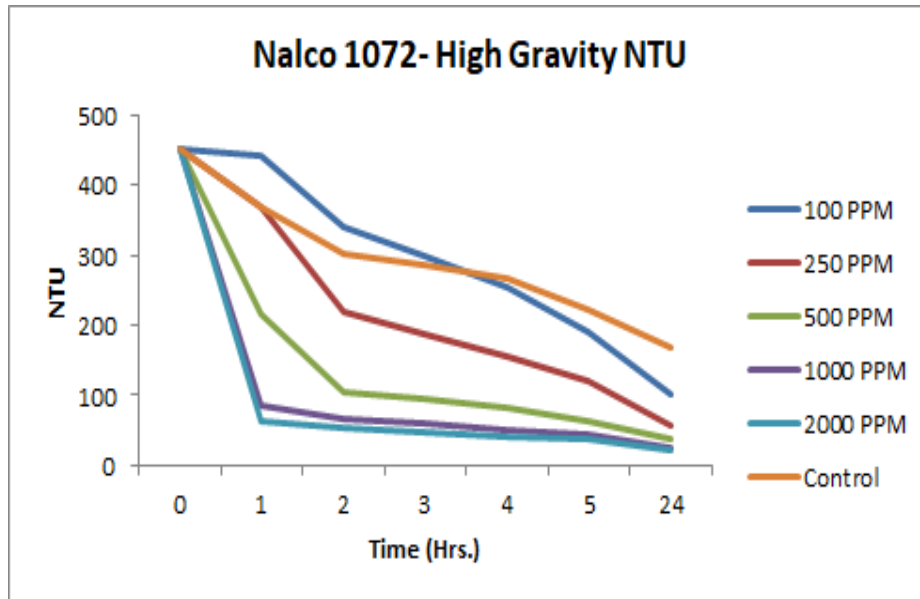
Batch Method: Add the kieselsoil slurry into the product while filling the finishing tank. Add the stabilizing agent proportionally during the fill or as a single shot method through the spray ball arm. Once the stabilizing agent has reacted with the respective protein or tannin, it will settle to the bottom of the tank as sediment. Settling times vary due to tank geometry and stabilizer/protein/tannin complex size. The stabilized beer can be separated from the sediment prior to filtration and any leftover sediment is easily removed during CIP.

Product Performance and Application

Product performance and competitive analyses were completed in low (American Wheat) and high gravity (IPA) fermentations. All products were dosed at the completion of primary fermentation. The final beer chemistry and product summary is shown in the tables below.

Beer Clarity

Beer	ABV	pH	IBU	Final Plato
Low Gravity	3.92	4.32	13.74	1.9
High Gravity	7.64	4.31	19.66	2.9



- For Nalco application in high & low gravity brews, all dosages were effective in lowering the NTU and achieving a clean sample in comparison to the control.
- There is a correlation between product efficiency and contact time. A lower dosage can be used to achieve target clarity over a longer period of time (1-24hrs.). On the same note, a higher dosage can be used to achieve target clarity over a shorter period of time (1-24hrs.).
- For commercial application, it is recommended to do dosage optimization trials to determine an ideal dose and contact time.



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