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COLFIN TTM-1016

TORQUE TENSION MODIFIER
08-26-15

COLFIN TTM-1016
A TORQUE TENSION MODIFIER WITH UV TRACER

COLFIN TTM-1016	is a Torque Control Modifier/Lubricant that can be used over all electroplated or mechanically plated zinc and zinc-alloy deposits.
COLFIN TTM-1016	increases the corrosion protection of the plated coating.
COLFIN TTM-1016	is formulated with a built in UV tracer to allow application confirmation.
COLFIN TTM-1016	is an easy-to-use, water-based liquid.
COLFIN TTM-1016	meets the requirements of GM GMW3044 G, PSA B15 4140, RENAULT 0171002, TS 2-21-07, John Deere JDM-F21 and JDM-F15.

COEFFICIENT OF FRICTION

Meets coefficient of friction range of 0.10 to 0.16 over zinc deposits.

OPERATING INSTRUCTIONS

	Range	Optimum
Concentration*	50 - 100%	50-75%
pH	8.5 - 10.0	9.0
Temperature	70 - 90°F	80°F
Immersion Time	30 - 60 seconds	40 seconds
Drying	Hot air spin drying with low rpm spin motor	

*Note: The variance in concentration will allow most users to adapt their current processing cycles to meet the 0.10-0.16 CoF range. Concentrations used at higher levels are typically used to account for higher spin dryer RPM's. The end-user who must work with existing equipment can vary the COLFIN TTM-1016 concentration to ensure proper coverage on the parts which will result in proper CoF readings.

- Higher spin dry speeds will "throw" the coating material off the parts, so higher concentrations may be required to allow for more coating solids to adhere properly.

- Slow-start and lower spin dry speeds will allow users to use lower concentrations. Parts will retain coating solids more if rpm's on the spin dryers are lower.

- Under the same processing conditions – higher concentrations will result in slightly lower CoF results, and lower concentrations will yield slightly higher CoF results. This is a way to "fine-tune" the solution to meet the specification based on processing technique.

- It is suggested that a starting point for the concentration be around 50%-60%.

ANALYSIS/CONTROL

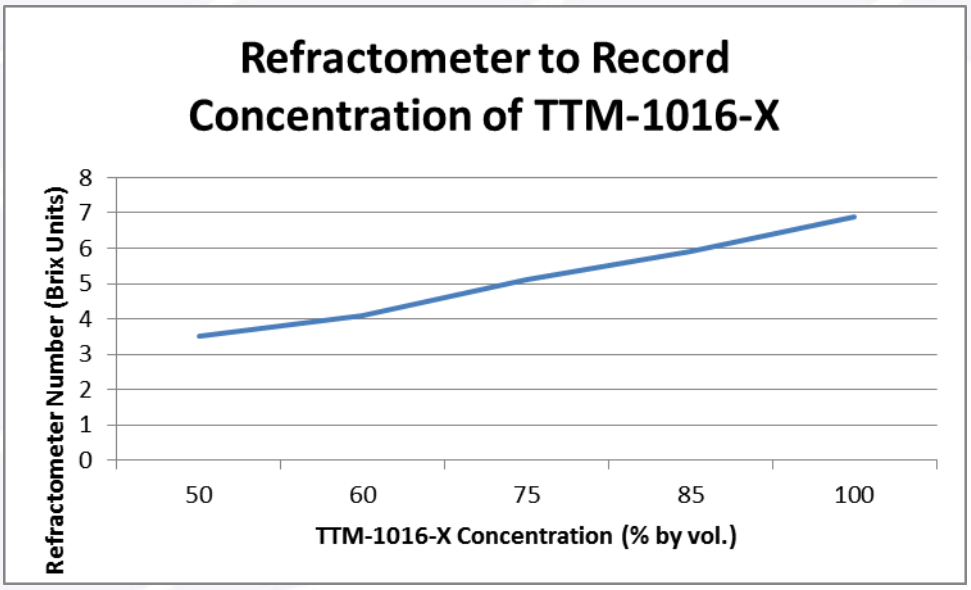
Concentration is measured with percent solids testing. Raise concentration with product additions. Add water to dilute concentrations.

Percent Solids Testing

1. Weigh out a small sample aluminum/glass weigh boat (Record weight)
2. Pipet 10 mls of the working solution into the weigh boat.
3. Place weigh boat in a 125-130degrees Celsius oven for 1.5-2 hrs. until dried completely.
4. Remove weigh boat. Cool and re-weigh the weigh boat.
5. Calculate % Working Solution

(Weight of Dried Solution) – (Weight of Weigh Boat) x 200 = % Working Solution

Refractometer Testing



Refractometer Testing

50% = 3.5 60% = 4.1 75% = 5.1 85% = 5.9 100% = 6.9

HELPFUL HINTS

- pH – adjustments are typically not required. No adjuster for lowering pH. Do Not add Acids! Adjust pH up with additions of product and/or **dilute** solutions of Ammonium hydroxide or caustic soda.

- Prior to immersion dip it is highly recommended to spin any excess water off the parts by running the work through a spin dryer without heat. Parts may come out slightly wet, however, this will minimize any excess water drag-in which will dilute your working solution.

- Drying Temperature – seek a spin dryer that will maintain a temperature of 150-180F in order to ensure proper drying of the COLFIN TTM-1016 coating within a 5 minute time frame.

- Spin Dry Rotation Speeds – seek a gradual start motor with speeds that slowly increase but have a max of 200 rpm. It is best practice to start with a cool dryer and gradually increase temperature while rotation speed is also increased.

- In areas where temperatures are elevated, be careful to mark solution volume and add water when necessary to maintain proper concentrations due to evaporation concerns.

- Tanks left idle for extended periods of time should be pumped into closed containers (ie drums or totes) until needed in the future. This should be done to avoid contamination sources and water evaporation. Prior to re-use, be sure to mix solution thoroughly prior to pumping solution back into the immersion tank.

PROCESS CYCLE

- Zinc or Zinc /Alloy Plate
- Rinses
- Columbia Chemical Chromate
- Rinse -remove excess water
- Apply COLFIN TTM-1016
- Dry

HANDLING AND STORAGE

CAUTION: Contact with the skin or eyes should be carefully avoided. Protective clothing and eye shields or goggles should be worn when handling COLFIN TTM-1016.

In case of contact, flush with large amounts of water. Remove contaminated clothing. For more detailed handling and storage instructions, please refer to the MSDS.

NON-WARRANTY

The data contained in this bulletin is believed by Columbia Chemical Corp. to be accurate, true, and complete. Since, however, final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.