RCL-11
Vs
TRISODIUM–NITRILOTRIACETATE (Na₃NTA)

The alternative sequestrant to *NTA*

*Resource Chemical Ltd*
NTA - We know…

Excellent sequestrant and cleaner

NTA tri sodium salt enhances system performance for MP / TFR / MDD applications

It has been suggested that there are no technically and commercially viable alternatives to NTA

Now CLP demands re-labelling this necessitates the need for the formulator to consider change
NTA variants (salt & acid) are probably one of the most thoroughly researched intermediates (*CEFIC*) for risks, especially any potential carcinogenic risk.

However due to the different metabolisms of animal species and humans it is uncertain whether this threat and risk in animals would be replicated in human metabolism.

Hence it was never clarified further - until now of course.
Labelling - future


Na₃NTA, CAS # 5064-313 has been officially classified:

- Xi R36 – Irritating to eyes
- Xn R22 – Harmful if swallowed

R40 – Limited evidence of a carcinogenic effect
Concentration breakpoints for formulations


Greater than or equal to 25% will be classified Harmful Xn R22,36,40

Less than 25% - greater than 20% Harmful Xn R36 / R40

5-20% Harmful Xn R40

Less than 5% not classified dangerous but listed as present on the MSDS
The next step

In accordance with good stewardship, manufacturers have to implement the new classification and labelling of $Na_3NTA$ according to commission directive 2009/2/EC.

Equally, after Dec 1 2010 formulators now have to re-label downstream blends containing $NTA$ exceeding banded parameters stated or alternatively formulate out and use another option: $RCL-11$?
Impact on: Machine Dishwash

Classic Machine Dishwash Liquid was heavily built with NTA

Requires R40 Clause - as most are above the 25% or between 5-25% parameters

COSHH risk assessment will recognise the problem and need for reduced risk using alternative technology
Impact on: Multi-purpose Cleaners

- MPC systems - low level of sequestrant inclusion
- Any impact of change equally low
- The total number of actives present provide chemical synergy and high dilution in use
- Ability to find alternatives to NTA within a multi component MPC blend – up to 10 raws – is easier can and substituted without technical compromise
- Claim for “NTA free” product to enhance sales and replace “old” hazardous technology
Benefits of *RCL-11*

- **RCL-11** - better than equivalent performance to NTA at 1:1 substitution in formulation
- Based on latest available technology
- The GHS / CLP risk category is only “Xi Irritant”
- Solely due to the intentional inclusion of KOH/NaOH to improve cleaning performance at irritant classification ceiling (0.5-2.0%)
- The inclusion of “caustics” is the same as NTA (up to 1.99%) and is part of the contributory cleaning synergy in high and low active detergents
More Benefits

- **RCL-11** also has virtually no residual odour
- We know NTA can have residual amine/nitrosamines depending on source
- Malodour unwanted in professional kitchen cleaning products
- Risk of taint spoiling of foodstuffs and equally unpleasant for users
- In the lab we have seen proven cleaning and sequestration comparable and better than NTA - without risk implication

Let's view the lab test results (see following slides)
**TEST:**
Soiled engine grease on a enamel paint product was diluted with hot tap water and applied to a vertical surface with a pipette at 1-10 dilution using no mechanical action to assist. The solution was applied twice and compared versus control hot water (left) and branded *TFR* (right).

*RCL-11* performs well versus the other market sequestrants with more particulate soil and grease removed.

The branded *TFR* is another control - is fully formulated heavily built as well also wetted with surfactants and as expected performs best in test.
Branded Traffic Film Remover
Formulated product

4% of 38% present 1:1 substituted - rest of formulation identical
Emulsification / Suspension Test

Over 30 minutes *RCL-11* offers better dispersion and colloidal coupling of used engine oil.
Cleaning – Tannins

*NTA* is known to be an excellent tannin remover in auto dishwasher applications. *RCL-11* is similar under test on tannin treated cotton swatches.
Cleaning Dishwash / Tannins
Sequestration of CaCO$_3$

Tested against known ppm of sequesterant versus known ppm of Calcium Carbonate – compared with control:
RCL-11: Safe Technology Available

Technical effective and comparable with global market available sequestrants

Better than a 1:1 replacement

User Friendly - Low risk - no R40 only Xi

IMPORTANT!
RCL-11 always requires confirmation testing in formulation by the user to ensure compatibility and technical competence - No liability accepted