Facts on filtration

It is interesting to note according to OEM's that over 75% of all engine failures is directly contributed to the fuel system or heat.

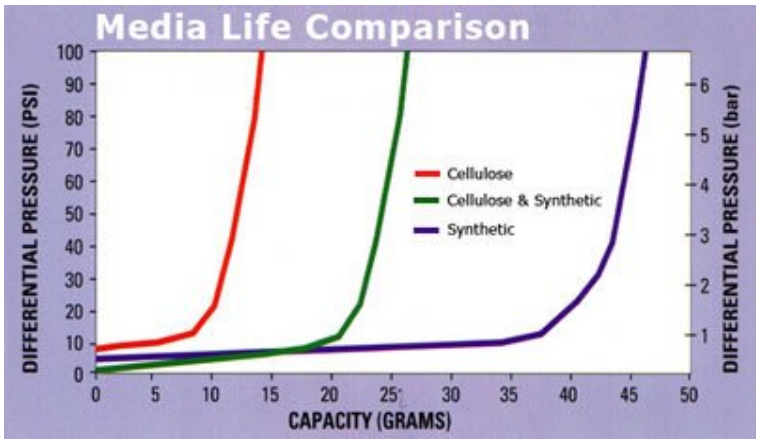
Mining houses are starting to understand the value of sustainable filtration, taking ownership of their bulk tanks and investing into cleanliness levels on oils and fuels.
This is due to a learning curve based on actual case studies and the realization of the technical advancement of equipment. Kumba –Sishen site is a model example.

How can these filters deliver the required cleanliness level over the time period required and with the sheer volume they need to filtrate?

Lack of sustainable filtration and inadequate design on main bulk tanks and mobile tanks leads to capacity constraints and compromises on the equipment's water and particle filters. Contamination levels must decline, not increase during handling. A few spin-on filters or single bulk filters are inadequate to sustain the required cleanliness levels.

Filters today have efficiency – micron rating, if matched correctly BUT capacity is the "Achilles heel", mainly due to capacity constraints and surges.

"The fuel systems of most diesel engines are equipped with water separators and two-stage fuel filters. Machine manufacturers add these or other fuel filtering systems to their equipment. Such devices will handle small amounts of contamination, but continued or excessive contamination of the fuel system will result in accelerated wear of the engine and the fuel system components " - Source: DEEP: intense multi million dollar study on: Diesel Emissions evaluation Program - www.deep.org



A 420 hp truck is fitted with a world leading brand filter with a maximum dirt holding capacity of 50g (premium to market standard). The SABS contamination specification is 24mg /kg, which translates (0.835) to 21mg/ltr. This means that every 50 ltr of fuel ads 1 gram of dirt to the fuel system.
Which translated means that in every 2500 ltr of diesel there is 50g of dirt, as is allowed per the contamination specification, thus the filter can possibly be compromised on capacity. This directly indicates that the filtration systems on trucks are periodically compromised, which leads to internal wear and which is responsible for premature failure. Especially if service intervals are taken into consideration based on distance and not volume of dirt retained in the medium. There are case studies where one BAD forecourt refueling has lead to engine failure.

Clean new oil dispensed from "new" drums are not within the required cleanliness specification of OEM's, especially in hydraulic oils.

The cost benefit ratio 1:10, which is fractional as to what contamination is costing in parts, fuel consumption, down-time, the logistics around breakdown, production losses, failures, back-up equipment and the lifecycles of equipment. The worst is that we delegate this important function to third parties without accountability or reimbursement for implementation and maintaining proper sustainable cleanliness levels in our fuels and oils. Take ownership of your contamination, the rewards are more than merely financial.

We know from history that older trucks use more fuel than when they were new. One major contributor to this is the internal wear inside the engine. The contamination that has over time impacted negatively on the components, the injectors, sleeves, piston rings etc,
By introducing sustainable filtration, the wear patterns are materially reduced, therefore the fuel saving of 4-6% pays for the filtration costs over and over again.

Contamination is liquid sandpaper – water & particle - which directly affects efficiencies, warranties and lifecycles

Material balance equation of contamination
Ctn = Cto + Ca-Cs
Total contamination = Start contamination + added contamination – removed contamination

The more you remove contamination at bulk tanks, mobile tanks and on equipment, the lower your total contamination at any specific point.

“Knowing the cleanliness level of a fluid is the basis for contamination control measures” Manufacturers specify optimum cleanliness levels for fuels, oils (engine, hydraulic & gear etc.)

Useful in warranty claims if one adheres to and implements these cleanliness levels on a sustainable level.