

Press Release.

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Time to make a Stir!

The current pace of technological change is so fast that there are inevitably sectors of the industrial world yet to embrace the 21st century's opportunities and inventions.

We all have our fair share of catching up to do but there is one British company **SYNERGY DEVICES LTD** with a mission: to be instrumental in providing cutting edge technology. Realising the potential of their idea they are, without hesitation, tackling the metaphorical steep hill and are slowly but surely assisting and convincing many companies to break through traditional methods and look beyond.

SDL are primarily involved in providing solutions for mixing, blending, and homogenising of raw materials, whether in the form of liquid, powder or pastes using a **dual asymmetric, non-invasive mixing technique**.

Attention to this subject is still in the embryonic stage, particularly where mechanical units with moving parts consuming **large amounts of expensive energy** are involved and in many cases, the mixing time is very short compared to the post-mix cleanup – a time consuming, labour intensive and expensive activity.

In some circumstances, because some manufactures use the conventional type of mixer i.e. planetary, blade etc, there is a risk of exposure to the operator when cleaning. Not only that, very often larger amounts are needed to be mixed in order to compensate for the waste material collecting on the side of the mixing vessel or on the blade. **Waste disposal is not a cheap option.**

It is hard to understand why any organisation would wish to wastefully invest in the man-hours required for cleaning equipment after it has been used. What do we do with the waste materials and solvents chemical cleaning agents? **These all are adding costs to the bottom line.**

It is amazing that Health and Safety occupational health have not decided that mixing should be non-invasive.

Let us consider the health of our planet and the general acceptance that global warming is here with the resultant traumas that Mother Nature is throwing at us. **The need to save energy is paramount.** Not only that it's our duty for the future of all mankind to reduce our emissions from every process, whether it be the exhaust emission from our cars or the chemical volatiles from our paints, inks, plastics, colours adhesives etc.

It is unlikely that man will stop trying to evolve and develop new and more sophisticated technology and miniaturising of nearly everything we touch will soon be the norm. Some scientists are concerned that with nanotechnology techniques there is the possibility that the particle and hybrid materials that will be developed will have particle sizes so small that questions on their safety need to be asked. What could be the accumulative effect when these particles are not bound into a matrix of some kind, if we stay using conventional mixing methods? We will possibly have to be suited, masked and protected to the hilt to meet current and future legislation.

Let us consider the benefits of non-invasive dual asymmetric mixing technology.

The evolution of the dual asymmetric SpeedMixer™ has been successful because it is an ideal size laboratory unit providing flexibility and demonstrating unrivalled benefits for the rapid mixing and grinding of many varied materials.

Other advantages include using the unit to mix directly into syringes or cartridges. In many cases, the mixing is complete in a few seconds however; the mixing time is most likely to be between 5 seconds to 5 minutes.

SpeedMixer™



The dual asymmetric DAC 150 FV-K shown in the photograph works by spinning a high speed-mixing arm in one direction while the basket rotates in the opposite direction (thus, the name - Dual Asymmetric Centrifuge). This combination of forces in different planes enables incredibly fast mixing, and yet the precision construction of each machine gives it a balance that allows amazingly quiet operation

With this instrument, the typical mixing time for fully dispersing a colour paste in a silicone sealant is less than 10 seconds; for mixing fumed silica or precipitated chalk silicone formulations 8 - 14 seconds will normally suffice. These are both operations that would otherwise require 3 hours or more of mixing time, and they can only be done in quantities of 1 litre or greater. Mixing never incorporates air and additional mixing time removes air from the blend, yielding a finished product when the mixing process is done. Fluids of widely differing viscosities can be blended quickly.

This technology is so diverse and lends itself to mixing one and 2 part silicones, epoxies, polyurethanes, polysulfides, acrylics and a wide range of other materials. There are certainly a great number of products not included in this list that can benefit from the use of the SpeedMixer™ technology. With disposable cups, syringes & cartridges there is no worry about contamination in colour master batches, pharmaceutical products, or other sensitive materials...

The smaller laboratory size machines offer a maximum mixing batch weight of 100 grams, (150g total, including the mixing cup, lid, and holder). The design of the SpeedMixer™ is such that the cups are used with holders that have weights designed to maintain the balance of the machine. Mixing weights can be as little as 0.1 gram in the laboratory model but can reach and amazing 3000 gm in the larger machines.

One would be hard pushed not to think of a use for these machines, the imagination has created applications for lab screening of development formulations and formulation components. Quality Assurance and control testing with the larger machines offering small volume production. The incredible speed of mixing / grinding allows a complete sealant, coating, plastisol, or adhesive batch to be made in less than 5 minutes! The bottleneck now becomes the weighing operation, not the mixing / grinding. This makes every SpeedMixer™ user a better compounder, since it allows the mixing of many iterations that would otherwise go untested due to time constraints. The SpeedMixer™ DAC 150 FV-K has proven itself extremely useful for tests involving cure rates, colours, and appearance, as well as the measurement of basic physical properties. This permits the screening of numerous formulations before the next phase of development scale-up.

The operator has to think a little differently to conventional mixing techniques but once the phenomenon has been mastered and the understanding of the rheology versus time and speed, the quantity and size of vessel to carry out the mixing can be easily determined.

Hand mixing and stirring ingredients with blades using conventional techniques whether it is food, pharmaceutical, paints or dyes, it is time to wave au revoir and see the bigger picture. SYNERGY DEVICES LTD is the kind of company that will offer the flexible approach to the inevitable changes to the material world.

SDL have a website and can be contacted on <http://www.speedmixer.co.uk/>