

TECH WATCH LANKA

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Attempt to serve technology needs of the industry

Technology is some thing that is continuously changing in every sphere. Industries all over the world adopt and change with new developments in order to improve efficiency and effectiveness. Sri Lankan industries too need to keep abreast in order to develop and remain competitive.

In order to facilitate local organizations identify global developments in relevant and applicable technology the

Technology Watch Centre (TWC) has been recently established at the National Science Foundation under the auspices of the Science & Technology Personnel Development Project of the Ministry of Science and Technology. In its endeavor to serve the local industries News letter entitled "TECH WATCH LANKA" would be circulated on a regular basis. In its first year in operation the TWC would look at the 3 thrust areas given herein & thereafter expand to all other areas.

FOOD SCIENCE & TECHNOLOGY

Case packer for glass bottles



The model CMWACP Case Packer is suitable for case packing glass bottles at high speeds. Continuous motion and gentle handling of the bottles prevents label marring and glass breakage. Designed for maximum flexibility, the case packer offers a size range that allows for two bottle diameters and two pack patterns at speeds of up to 50 case/min. Product change over is accomplished simply by removing one product metering cartridge and replacing it with another.

Bottle sizes or pack arrangements are accommodated through the purchase of additional cartridges. Features include digital adjustment indicators for quick and repeatable adjustment and, open flap detection at machine discharge.

For Information -

Douglas machine LLC, 3404 Iowa Alexandria, Mn 56308

Tel: 320-763-6587

<http://www.beverageonline.com>

Improved method of making garlic powder

The improved process produces dehydrated garlic powder, free from husk. In this process garlic bulbs are broken, and the cloves and papery husks are separated by aspiration. The cloves are mechanically pre-conditioned and dried. Dried material is suitably processed to loosen and separate the adhering husk layer from the meat. The mixture is suitably separated and the dried meat after inspection and quality control, powdered to obtain the final product.

For Information

NRDC-INDIA

Email

Nrdc@x400.nicgw.nic.in

Extended shelf life (ESL) Packaging Machine Technologies

Accessories are required to control surface contacting products. Air quality enclosures of the basic machine are combined with HEPA

(High Efficiency Particulate Air) filtration (ideally, with laminar flow) to form a Class 100 environment, or "clean room," for the form, fill and seal sections of the machine. The environment is pressurized to assure an outward flow during normal operations and when doors are opened.

ESL machines generally utilize hermetically sealed metering bowls. The fill valves and both sides of the pistons are flooded with the product, which prevents air from entering the system. HEPA filtered air occupies headspace in the product tank for additional protection. ESL requires a carton forming and sealing system that minimizes carton contamination. There by this will auto improve refrigerated shelf life up to 24 days for pasteurized dairy products, again depending upon various factors related to processing in the plant and distribution.

The additional ESL measure of pre-sanitization at 195° - 205° F can extend refrigerated shelf life as far as 28 days -the limit for HTST processed dairy products before they begin to degrade because of non-microbial factors. (This measure also eliminates the need for chemical sterilants)



For Information

<http://www.dairynetwork.com>

New Rapid Detection System for Salmonella in Food - GENE-TRAK SYSTEM



A leading manufacturer of food diagnostics, introduces a new rapid system for detecting Salmonella spp. in food. GENE-TRAK System's Sequepoint Salmonella utilizes DNA hybridization technology in a microtiter format that can be used manually or with an automated processor for high throughput of microbiological analysis of food samples.

Sequepoint Salmonella is a DNA probe assay specifically designed for the rapid detection of Salmonella spp. in food. Utilization of directly labeled probes provides sensitivity and specificity equivalent to the GENE-TRAK Salmonella DLP Assay and traditional culture methods. The assay is capable of detecting as few as 1 Salmonella cell in 25 grams of food sample. The combination of DNA hybridization technology in a 96 well microtiter format offers flexibility, convenience and reliable results.

For information

<http://www.meat/ & poultryonline.com>

RUBBER & POLYMER TECHNOLOGY

PLASTICS INDUSTRY

NOW PEOPLE WANT PLASTIC TO BE HEAVY



For half a century, the most basic appeal of thermoplastics has been their ability to make parts lighter and less costly while also delivering performance benefits over traditional materials like glass, ceramic, aluminum, steel, zinc, and lead. At first glance, any effort to deliberately manufacture heavyweight compounds with specific gravity of 1.8 -15 appears to conflict with common sense.

The relatively new category of high-gravity compounds (HGCs) consists of thermoplastics containing 40% to 96% by weight of mineral filler or metal powder. These specialty materials have densities of up to 15 g/cc yet still have the moldability of plastics. HGCs are far more dense than existing plastics—e.g., 40% glass-filled nylon has a specific gravity (SG) of just 1.46—and are weighty enough to compare with aluminum (2.7 SG), zinc (6.64), steel (7.6), and lead-antimony (11.35).

How is it done?

Light HGCs use mineral fillers, notably calcium carbonate (2.6 SG), talc (2.7), or barium sulfate (4.5), and are well suited for replacing glass, ceramic, and aluminum. Since most mineral fillers are white, colorability for this category tends to span light to dark. Middle- and heavyweight HGCs typically require more dense metal fillers like steel, aluminum, or tungsten. The metal fillers can impart properties like magnetism (if ferrite or nickel fillers are used), radiation shielding, and thermal conductivity. But HGCs containing metal powders (which are dark) typically are

restricted to darker color shade.

For Further Details

<http://www.plasticstechnology.com/issues/0601.html>

Polymers as Additives

A pinch of one resin can teach another one new trick. Take a look at the promising results of four novel property enhances for thermoplastics and thermosets. New opportunities for modifying thermoplastics and thermosets without the need for solid fillers or reinforcements are given.

- (1) New grades of polyphenylene oxide (PPO) improve processing and properties of TP elastomers, thermoset SMC/BMC, and epoxies.
- 2) Polypropylene films and molded parts can be toughened with mLLDPE, which is surprisingly compatible with PP.
- (3) An unusual TPE acts as a permanent anti-stat for commodity and engineering plastics.
- (4) Metallocene-catalyzed ethylene-styrene interpolymers can compatibilize PS/PE blends.

For Further Details

<http://www.plasticstechnology.com/current.html>

LATEX PRODUCTS

PROTEIN ALLERGY, THE GREATEST CHALLENGE TO NR LATEX GLOVES

Despite all challenges in the glove industry natural rubber (NR) latex is still the best choice for protection against infectious diseases.

Green Image

There is an increasing pressure for consumer goods to be made of green materials. Unlike its synthetic alternatives, NR latex glove is an inherently environmentally friendly material. NR itself is a sustainable and renewable.

The Allergy Problem

It is true that certain NR latex proteins can cause Type I hypersensitivity to some sensitized individuals. But, is the problem so prevalent as claimed? Although the threshold for sensitization remains unknown, data has shown that if extractable protein (EP) contents were kept below 100 µg/g of glove (RRIM-Lowry), almost 100% of latex hypersensitive patients showed no allergic response on skin prick testing.

For Further Details <http://www.irrdb.org/property/lpa.htm>

REDUCTION OF EXTRACTABLE PROTEIN CONTENT OF NR

Leaching in the dilute hydrochloric acid at room temperature was found to reduce the EP of the rubber films significantly. Treatment of dry rubber film with low concentration of ozone water also accelerated the removal of EP. The rate of EP reduction could be increased by increasing the temperature of the leaching system. It could be further enhanced by incorporating ultrasonic waves into the dry-film leaching system. The rate of EP reduction for pre vulcanized latex films was higher than that of post vulcanized films.

The incorporation of immersible transducers to generate ultrasonic waves in the dry-film leaching Process.

The variation of leaching temperature with the ultrasonic waves in the leaching system revealed that the optimum temperature for maximum EP & AP reduction was 55°C. Treatment of protein extract from NR glove with chlorine was found to cause a drastic reduction in EP and AP contents of the NR gloves. Dry-film leaching of NR gloves in various dilute mineral acids did not reduce EP and AP contents. However, dipping of gloves into ammonia solution after dry-film leaching could significantly reduce the EP & AP contents of NR gloves.

Soluble protein free latex by radiation process

In order to follow up the effects of radiation on NR proteins, field latex was irradiated with gamma rays. The water solubility of the proteins increases with the increasing dose. In the new process the radiation-vulcanised, centrifuged latex is subjected to dilution and then centrifuged. In the case of field latex, it is irradiated first and then centrifuged after dilution.

Fumed Silica Latex Additive, Cleaning Natural Rubber from Allergenic Proteins for Powder Free Latex Gloves

This is an enhanced technology for dipping allergenic-free latex goods using new fumed silica dispersions as an additive. There is no need for new processed latex, revised equipment or new dipping methods. It is possible now to easily convert to manufacturing pre-powdered allergen-clean gloves. Furthermore, this method can be combined on line, with polymer coating, eliminating the need for the undesired, expensive latex chlorination.

.New Developments in Enzyme Treated Natural Rubber Latex

This process uses proteolytic enzymes to digest the latex proteins into smaller, relatively non-antigenic pieces.

Electrophoresis (SDS-PAGE) of the control (NRL) and enzyme treated NRL (ET-NRL) shows that the size of sustainable proteins was greatly reduced by enzyme treatment from a 10-200 kDa range to a much lower size range of 10 kDa or less .

Highly Biocompatible Films Produced via Novel Free Radical Cross linking- Possible Solution to Type IV Allergies and Other Problems

A novel free radical, sulfur free vulcanization / curing method has been developed for use with many synthetic and natural rubber latices. This innovative method, specifically for use in manufacturing dip-molded goods, offers significant advantages to the medical device industry. Latex products using this novel curing method are free of nitrosamines, sulfur-based curatives, accelerators, activators, and boosters.

For further details,

<http://www.rubbernews.com/>

</latex2001/index.html>

TYRE INDUSTRY

Advances in precipitated silica for passenger & truck tyre-treads

For the all-natural rubber low rolling resistance truck tread formulation at a constant level of accelerator(s), increasing silica surface area or increasing the loading of silica significantly reduces the cure-related compound physical properties. Therefore, with the appropriate level of accelerator to compensate for the surface area and the loading of silica, the perturbation of the cure system due to the reactive nature of the silica relative to carbon black is overcome allowing a reduction in the level of silane required to achieve the desired balance of cure-related properties. For this natural rubber-based tread formulation, no significant effect of either silica loading or level of silane on Mooney viscosity was found at the levels studied.

Stabilization of tyre compounds with QDI

Protecting vulcanizates, based on NR or NR blends, with quinonediimine(QDI) antidegradants provides protection similar to that achieved with conventional PPD antidegradants. In an oxidative environment, reversion is reduced when compounds are protected with QDI antidegradants. Dynamic mechanical properties are maintained better with quinone-diimine antidegradants compared to PPDs due to a reduction in reversion chemistry upon aging.

For Further Details

<http://www.rubber-stichting.ind.tno.nl/index3.htm>

SURFACE COATING INDUSTRY

JET DISPERSION

Dispersion is the dominant step in the manufacture of emulsions or suspensions. The principal differences between

conventional technologies, like stirred tanks, rotor stator systems, high-pressure homogenizers and the jet dispersion technology are dominant. Examples for the applications of this technology includes an amino vulcanization accelerator, a phenolic non-staining antioxidant and a phosphate based sulphur donor. These systems are shown to be stable in water for technically relevant time periods.

For Further Details

<http://www.rubbernews.com/>

[latex2001/index.html](http://www.rubbernews.com/latex2001/index.html)

LOCAL R & D

HOME PLASTER-TM is an environmentally friendly Lime free product

In current construction industry Lime Stone is used for wall finishing, the removing of which from the coastal areas has Become a serious environmental threat!!!

HOME PLASTER™ a premium quality readymix Skim Coat is exclusively for use on walls (internal and External) and Ceilings. Easy to mix and use, its powdered high Silica content and other special chemicals produces an extremely durable yet fine coat, not exceeding 3mm. Formulated for professional quality, require much skill and experience to secure a smooth product and without too high a cost, which can be attributed to the result of scientific research and applications of **Modern Engineering**.

For Further Details

Susanthapr@yahoo.com



AQUACULTURE TECHNOLOGY

Do you want to get the maximum utility from your aquarium constrained with space?

A solution could be a Bio-filter

An efficient, easy and safe bio-filter has been developed called bio home

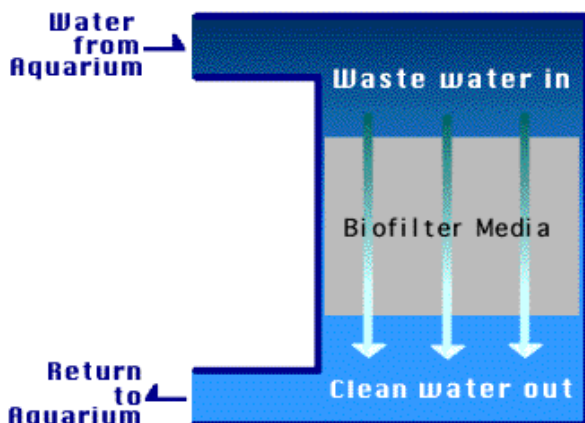
Why do you need a Bio-filter?

- It removes Ammonia and other poisonous nitrogen compounds from the aquarium water
- When water flows through the filter, it houses bacteria in the water
- Bacteria in the bio-filter digest waste in the water, cleans and returns it to the pond.

Benefits of using a bio-filter

- Its microscopic tunnels facilitate growth of billions of nitrifying and denitrifying bacteria.
- It does not release any residual gases or toxins to the environment
- Its compacted structure allows you to keep more fish in a smaller tank
- It significantly reduces the need to change water.
- It significantly reduces toxic nitrogen including nitrate.
- Bio-filter media can easily be transferred between aquaculture systems
- The growing of bacteria is quicker on bio-filter
- It is suitable for all aquaria including cold water, tropical & marine applications.

For information: - www.aqua-bio.com



Do you want to minimize the mortalities during fish counting?

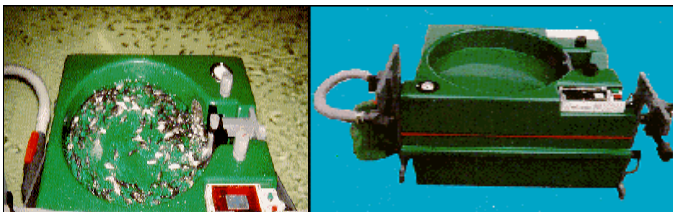
Think about a new Fish counter (TPS Fish counter)

The counter is mounted on a side of the tank and the fish to be counted are netted in to the machine. The fish swim through the machine consisting of a photoelectric cell and pass to the tank below. In this process they get counted.

Advantages

- It is a new machine that allows you to accurately count small fish without damaging them.
- It provides good environment for the fish whilst they are being counted.
- It provides a stress-free counting environment.
- It facilitates counting of fish from 0.2g to 70g.

For information: - www.chaqua.com



Do you want to maintain an optimum oxygen level in your aquarium by adding more oxygen?

Oxyplast SC Oxygenation system may be a solution

Oxygen plays a vital role in your aquarium. Therefore it is important to maintain a sufficient level of oxygen in the pond. The system consist of a very efficient oxygen column designed specifically for oxygenating the main inlet supply of a hatchery or other pipe fed farms. It is a straightforward and cost effective solution that provides oxygen to your aquarium water.

Features of the system

- It takes small amount of inlet water and oxygenates it to a high level and finally returns it to the main supply.
- It significantly boosts the oxygen level in the supply.
- It automatically maintains an optimum oxygen level in the supply.

A pressure sensor inside the system detects pressure loss



For information: - <http://www.chaqua.com/>

Jewelry from dead seahorses



An exciting and unique offshoot of live seahorse production.

It is the making of jewelry from natural mortalities.

The seahorses are dried and then coated with various metals to give them striking finishes

For information: -www.seahorseaquaculture.com.au/

Technology Watch Centre

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