



Purity through
quality™ since 1923



Carlbev Filtration
Total filtration for the soft drinks
and fruit juice industry

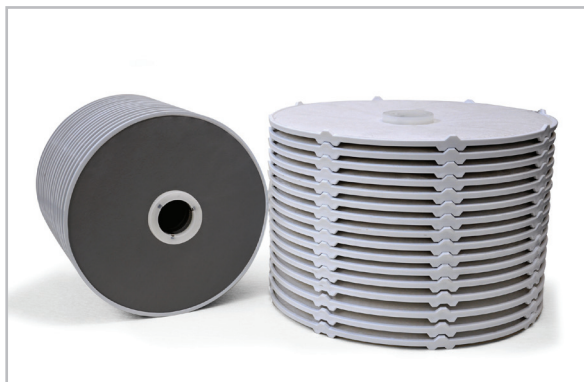
DEPTH FILTRATION FOR VALUABLE LIQUIDS

Carlbev Filtration

Total filtration for the soft drinks and fruit juice industry

The production of soft drinks involves the filtering of sugar syrup, fruit juices and water either as process or drinking water. The lenticular module offers a compact, self-contained liquid filtration solution using proven media technology.

FRUIT JUICE FILTRATION



A large range of soft drinks and beverages are treated with Carlson filters

The purity of the sugar solution is measured in ICUMSA (International Commission for Uniform Methods of Sugar Analysis) or RBU (Reference colour Base Units). A high Icumsa or RBU reading (150 – 450) indicates a poor quality sugar which will require a considerable degree of processing. The internationally accepted standard for sugar syrup of 65 Brix is 45 ICUMSA. For high quality syrups a simple one-stage “polishing” step using relatively open pore sheets (Carlson XE20H or the all- cellulose EE3.0H) will suffice. Flow rates of 950l/m²/hour can be achieved with high quality, dilute syrups.

Sugar with a high ICUMSA measurement (unrefined sugars) may contain significant levels of impurities which will require removal to satisfy drink quality requirements. Filtration through a cake of diatomaceous earth (kieselguhr) on a support sheet (Carlson W2N) within a plate and frame filter press with high voids volume will achieve this end result. It is possible that, where high levels of colour also need removal, powdered activated carbon will be added to the syrup prior to passage through the filter. The DE will also serve to trap the excess carbon. Typically for this application 0.5% w/w (or more) is added to the syrup as a filter aid prior to batch filtration and 500 g/m² (of filter plate area) is applied as a pre-coat. Flow rate could be as slow as 200-300 l/m²/hour with syrups containing high concentrations of diatomaceous earth and activated carbon. The second polishing/clarifying stage of the process is carried out using filter sheets – typically XE20H or XE50H. If a third, sterile, stage is necessary, Carlson XE675H or XE900H grade filter sheets would be appropriate.

A very similar first stage process can be used for Fruit Juice. The second stage is more dependent on the type of juice to be treated and the nature of contaminants to be removed. Filter sheets in the range XE20H to XE200H would be appropriate.

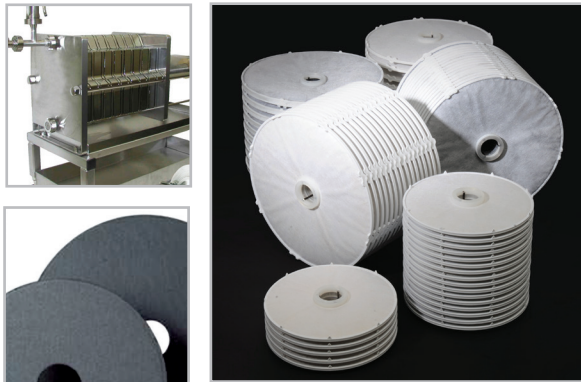
Process Water

The water used in the production of soft drinks and/or diluted juices also needs filtration. The degree to which filtration is necessary will depend upon the water source and filter cartridges would normally be the filtration method of choice. Carlson's range of process, activated carbon for chlorine removal and membrane filter cartridges covers the full breadth of this requirement.

Carlson filters are used in some of
the worlds freshest fruit juices



SOFT DRINKS FILTRATION



Lenticular filtration

Lenticular modules offer a compact, self-contained liquid filtration solution using proven media technology. It is perfectly possible to use this technology using support, carbon, polishing or sterile filter media.

Carlson lenticular filters are essentially composed of depth filter media supported on a polypropylene skeleton and supplied in modular form normally comprising 16 cells of either 12" (300mm) or 16" (400mm) diameter. They offer all the advantages of traditional sheet filtration but in a totally enclosed, sterile environment. They are designed to fit industry standard housings holding 1,2,3 or 4 modules.

Carbon treatment

For certain types of higher quality syrups it is possible to achieve decolourisation using a filter sheet from the CarlCarb range which are impregnated with activated carbon. These sheets not only decolourise but can also act as a polishing sheet. As contact time with the carbon is necessary, flow rates in the range of 150 to 350 l/m²/hour would be recommended subject to the degree of decolourising required. Colour removal by filtration through carbon media filtration can be upto 50% more efficient than a batch process using powdered activated carbon. The limiting factor is the weight of activated carbon which the cellulose media is capable of holding. To offset this Carlson has recently announced its CarboPlus lenticular module holding upto 25% more carbon by weight than a traditional module.

Other benefits of carbon modules in relation to batch processes are:

- One process step only
- Not labour intensive
- No dust problems or health issues associated with dust
- No loose carbon powder or granules on site
- Cleaner working environment
- No removal problems
- No "messy" cake or risk of batch to batch contamination
- Consistent performance eliminating possibility of product re-works
- Easier and cheaper disposal costs
- No second stage filtration to remove carbon fines. Carlson modules incorporate backing papers to trap these fines.

Carlson filter housing and
press used within the
beverage industry



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FILTER SHEETS

To eliminate the specific contaminants associated with the filtration of soft drinks Carlson has a range of filtration media specifically for these purposes which are available in all customary sizes. Special formats to suit a variety of filter presses are available upon request. Further information on the Carlson range of sheets can be obtained either from your Carlson representative or the company website.

COMPLEMENTARY FILTRATION

Cartridges, Bags and Housings.

Carlson can also offer a comprehensive range of cartridges from wound, thermal bonded and pleated through to PES membranes as well as bags in felts of Viscose, Rayon, Polypropylene, Polyester, Nylon or Nylon monofilament. They are available for either new application or to retrofit to current installations. A full range of housings are also available to compliment this range.

For further information please see our Carlcart brochure.

FILTRATION EQUIPMENT AND SPARES

New filter equipment

Carlson offers a comprehensive range of new filtration equipment, incorporating a full range of filter presses and plate and frame filters. The range includes plate and frame and sheet filters from 20x20cm to 120x120cm of varying lengths. Manual models and fully automatic closing systems are available. Test equipment i.e. 6cm housings and 2 sheet 20cm press is also available.

Filter spares

Another important element of Carlson's support service is to supply spare parts for their filter range. These are categorised into:

- a. Consumable spares which include eyelet seals in a host of materials including Nitrile, Silicone, Natural Rubber, EPDM, Butyl and Viton.
- b. Servicing spares including pump spares, sight glasses, valve diaphragms and pressure gauges etc. Service kits for hydraulic filter press closing systems are also available.

