



# Carlson Spirits Filtration

Spirits filtration for the dark and white spirits industry

purity through quality™ since 1923



*A range of white and dark spirits created with Carlson filters*

## Introduction

From chill haze removal in dark spirits to the use of activated carbon for colour removal in white spirits, Carlson Filtration is widely regarded as a leader in the field of distilled spirits filtration.

## Filtration of Dark Spirits Whisky / Rum

The filtration of whisky, either single malt or blended types, is vital to ensure life, stability and good clarity. To this end the removal of hazes and the precursors to haze formation, is particularly important. Consequently, the steps used in the filtration of different types of whisky require careful control and correct choice of filter equipment and media. Carlson Filtration is highly regarded for its expertise in the area of whisky filtration and has developed a number of high performance filter sheets specifically for the industry.

There are two types of haze and precipitation problems associated with whisky which can be broadly classified as chemical and physical:

Chemical hazes result from trace metal contamination and the consequent formation of metal complexes with tannin and colouring matter. The problem of trace metal contamination can be reduced by careful choice of materials used in process and production plant. Another source of chemical haze arises from the water used to reduce whisky to bottling strength. On dilution whisky produces a turbid, cloudy appearance which reaches an equilibrium after about 24 hours, prior to filtration.

Physical hazes and their associated precipitation problems are much more difficult to deal with. These physical hazes require liquid/liquid separation as opposed to the elimination

of solid particulate matter usually associated with filtration. The liquid phase requiring removal from whisky comprises ethereal oils. Their removal is made more complex because they may show up as a haze in bottled product, despite the fact that the product may have been perfectly bright at the time of bottling.

Whisky shipped to countries with low ambient temperatures may throw a haze due to the temperature reduction.

To avoid this problem most whisky is filtered after chilling; typical temperatures used vary between zero to plus 4 degrees C.

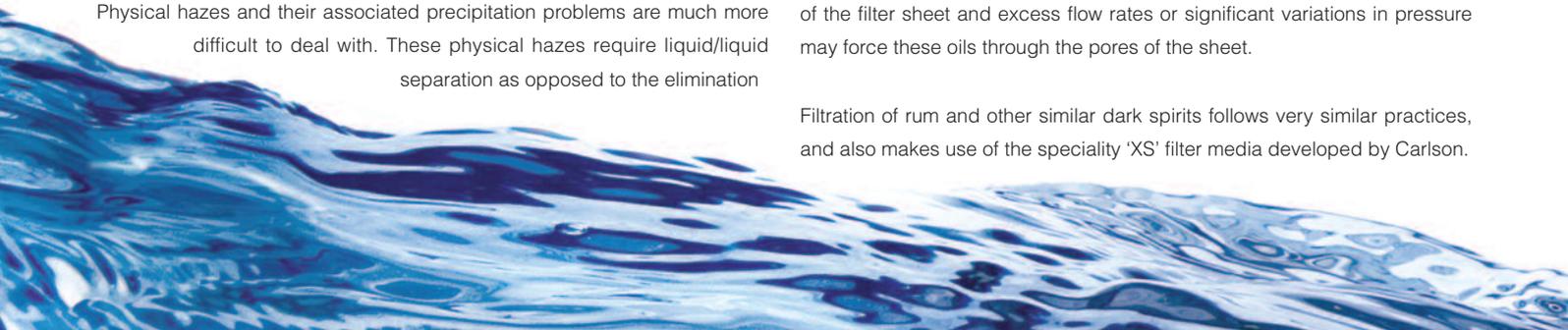
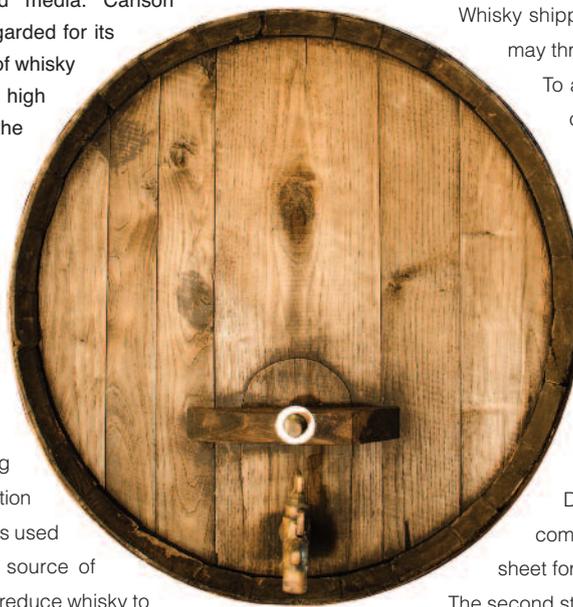
The sheet filtration process used in the whisky industry may be in lenticular or sheet filter format and either single or dual stage:

Single stage filtration takes place at 0 - 4 degrees C when bottling at 20 degrees C.

Double or two stage filtration is now more common. Typically, the first stage uses a "roughing" sheet for the removal of larger particulate matter.

The second stage uses a filter sheet from our speciality range of "XS" low calcium sheets. This achieves a level of "polish" or clarity in blended products. It is very important to avoid any surging or pressure shocks whilst filtering whisky because there is a build up of viscous oils on the surface of the filter sheet and excess flow rates or significant variations in pressure may force these oils through the pores of the sheet.

Filtration of rum and other similar dark spirits follows very similar practices, and also makes use of the speciality 'XS' filter media developed by Carlson.





Lenticular filters and Carbon filters

Carlson filters are used in some of the worlds best whiskies

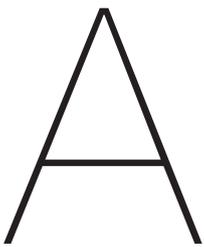


Carlson filter housing and press used within the spirits industry



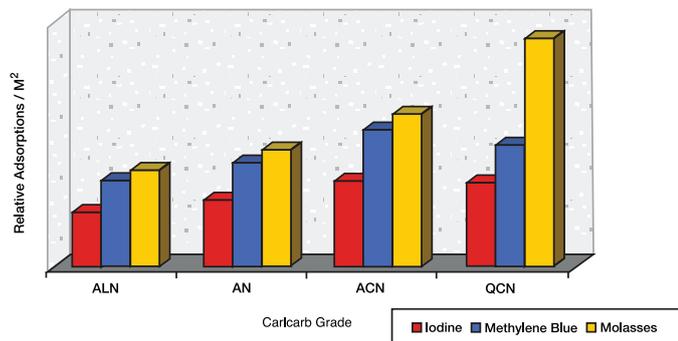
Since the birth of the company in 1923 we have constantly striven to develop our knowledge, expertise and product range in order to optimise the filtration solutions on offer.

## Colour removal and clarification of white spirits



Activated carbon plays a critical role in making colour, odour or taste corrections in white spirits such as vodka, tequila and gin after distillation, dilution or blending. To meet this requirement Carlson Filtration has a comprehensive range of activated carbon media within the Carcarb Range.

For spirits filtration Carlson offer the Carcarb "A" range of carbon media in 3 forms to match specific requirements. The "A" grade has good broad adsorption range, from micro to macro pore sizes.



Carcarb QCN is a higher adsorption, higher performance grade. With high carbon content, low ion content and higher adsorption capacity, QCN is a premium performance version of the Carcarb "ACN" grade.



Carlson Filtration can supply the Carcarb range in either flat sheet or lenticular module format. The benefits of the impregnated media are:

- Elimination of the need for loose activated carbon
- Elimination of the need for use of filters and/or filter aids to facilitate the removal of activated carbon powder from the spirit
- No messy filter cake handling or disposal
- Less time consuming
- Easier and cheaper disposal of spent filter materials
- Totally enclosed system
- More effective carbon use as the liquid is "forced" into effective contact with the media

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## FILTER SHEETS

To eliminate the specific factors associated with the filtration of spirits, Carlson Filtration has developed 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 "XS" range of sheets can be obtained either from your Carlson representative or the company website.

## Lenticular modules

The lenticular module concept offers a compact, self contained, liquid filtration solution utilising proven filter media technology.

The lenticular module concept can incorporate the full range of Carlson Filtration filter media.

Carlson Carlent lenticular filters are essentially composed of Carlson depth filter media, supported on a polypropylene skeleton and supplied in modular format normally comprising of 16 cells of either 12" (300mm) or 16" (400mm) diameter. They offer all the advantages of traditional filter sheet filtration but in a totally enclosed, sterile environment, thus eliminating product losses and external contamination.

They are designed to fit industry standard housings incorporating 1,2,3 or 4 modules. These can be supplied either as stand alone or complete turn key skid mounted units.

For further information on this product and the associated housings please see our Carlent brochure.

## Complementary Filtration

### Cartridges, Bags and Housings.

Carlson can also offer a comprehensive range of cartridges from wound, pleated and thermal bonded through to PES membranes as well as bags in felt, nylon monofilament, polypropylene and polyester. 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

## 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 sizes from 20x20cm to 120x120cm of varying lengths. Manual models and fully automatic closing systems are 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, Silicon, 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.

### Reconditioned filter equipment

Carlson also offers reconditioned sheet and plate and frame filter presses. We have developed a wide ranging network of contacts in the filter press community as well as amongst dealers in used factory equipment. On arrival at Carlson's factory all filters are rebuilt to exacting standards to meet customers filtration requirements and to achieve an "as good as new" quality.

Dealer stamp



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