SULZER

CASE STUDY

# Dusec in hydrogen peroxide production

**The environmentally friendly hydrogen peroxide is increasingly replacing the chlorate process in the production of paper. One of the key stages in the production of hydrogen peroxide or $H_2O_2$ is a solvent extraction column where water is used in a countercurrent process to extract $H_2O_2$ from an organic solution sometimes referred as “working solution”. Some degree of primary and secondary carryover is inevitable.**

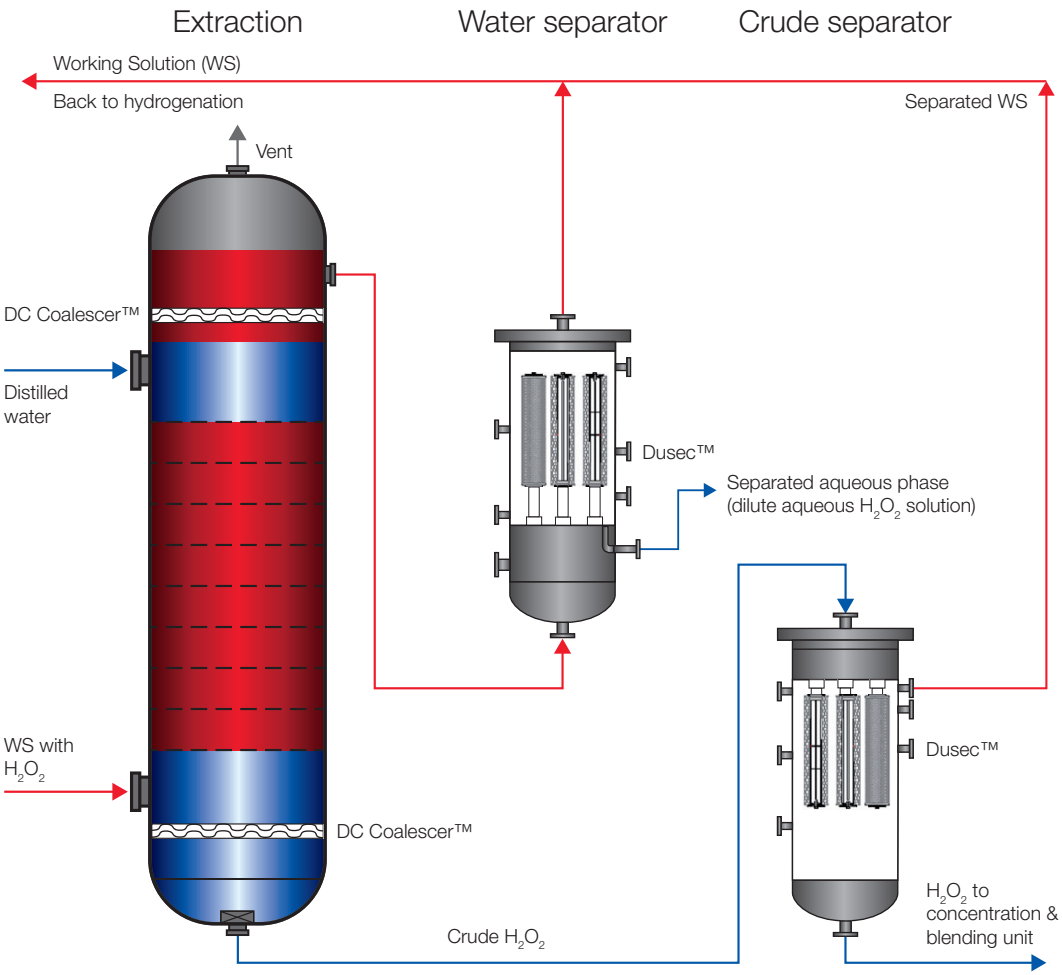
## The challenge

There are material compatibility challenges associated with hydrogen peroxide. This is particularly evident with crude coalescers which remove entrained organic liquid from concentrated hydrogen peroxide solution – a solution which will attack the majority of polymers, fibers and resins commonly used in coalescer manufacture.

## The solution

Sulzer coalescers have proved very successful in solving all the inherent problems associated with hydrogen peroxide production and are used in several places in the process. Sulzer DC Coalescers™ are installed in the top and bottom of the extraction column to prevent primary carryover and are usually “backed up” by secondary coalescers in the form of Sulzer Dusec™ Cartridges. The liquid flow rates involved tend to be in the range of 100 to 400 $m^3$/hr and therefore require coalescer vessels up to 3500 mm in diameter each containing as many as 80 cartridges. Having studied the problem of material compatibility, Sulzer has developed cartridge designs which can withstand the aggressive conditions for considerable periods (well over twelve months between cartridge change-outs) without any deterioration in performance.

Sulzer DC Coalescers™ installed at the top and bottom of extraction column to prevent primary carryover



## Benefits

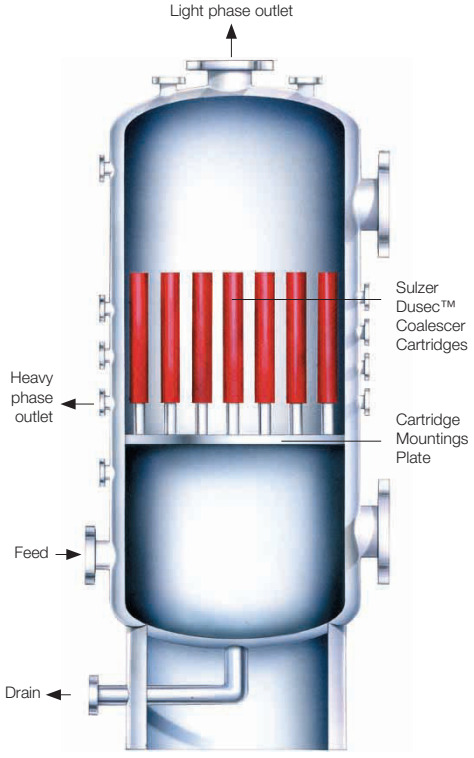
- Very efficient removal of primary and secondary carryover
- Robust design withstands the aggressive nature of the solution
- Improved sieve tray performance
- Excellent track record

## Key feature

Key feature in the design is a ‘mechanically bonded’ seal which replaces the resins normally used to secure the end caps to the cartridge fibers. These seals, combined with carefully selected fibers, mean the cartridges can resist even the most aggressive solvents thereby extending life expectancy.

It has also been proven that the use of thin layers of DC Coalescer mesh can enhance the performance of sieve trays in the extraction column by stabilizing the organic liquid phase below each tray. They are supported in simple channel frames below the sieve trays and have been installed successfully in column diameters of up to 3500 mm operated by major hydrogen peroxide producers.

Sulzer Dusec™ Coalescer Vessel for primary and secondary dispersions




Sulzer Dusec Coalescer Mounting Plate and Cartridges

**For any inquiries please contact**

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