Neutralisation Of High Alkali Water Using CO_2 Treatment

FSI Engineering

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Issues

All concrete plants throughout the batching process produce large volumes of high alkali water (high PH levels). Due to these high PH levels this water can not legally be released or reused in the batching process for high strength concrete. This leaves most sites with a substantial water disposal cost of a round $0.70 per litre.

Solution

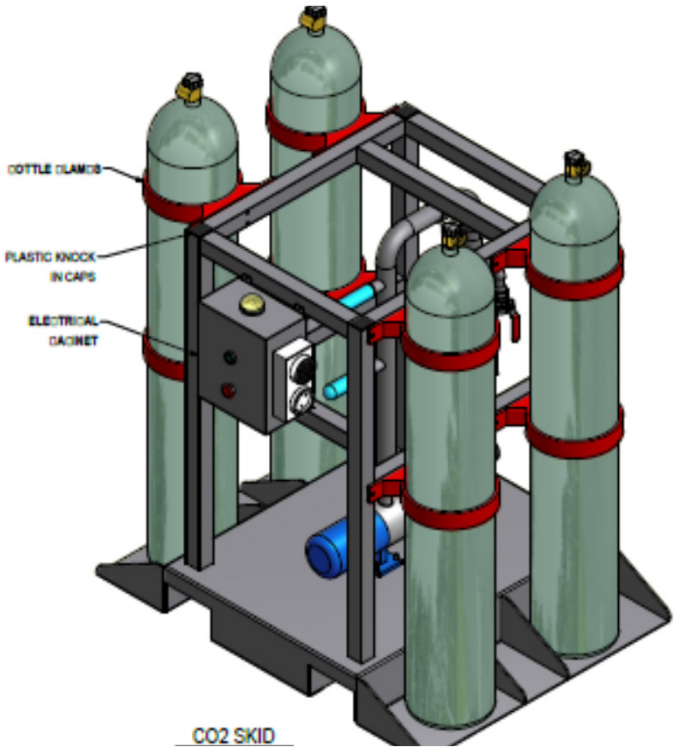
The contaminate Calcium Hydroxide is formed during the batch process which causes high alkalinity within the water. Using the process of CO_2 injection we are able to create a reaction which causes neutralisation of the water from pH of 11 to 13 to acceptable limits of 6.5 to 7.5

Advantages of CO_2 neutralisation

* Reaction is self buffering (pH can not drop below 6.5)
* No Handling of hazardous liquids
* Low running cost
* Low capital cost investment

It is estimated that this unit has save the end user $150,000 a year in waste disposal fees based on treatment of 900, 000L per annum.

System Design



CO2 SKID

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Finished Product

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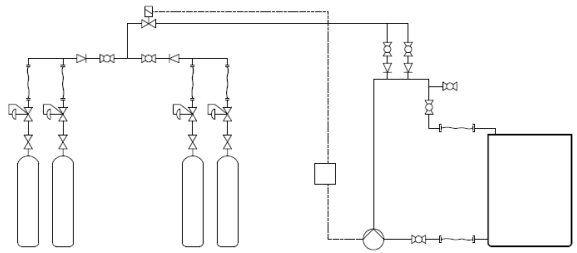
Functionality / Site Setup



Site installation

* Treatment Tank is filled with high alkali water
* Start circulation - CO_2 injection system
* PLC timer stops CO_2 injection and pump on treatment completion
* Operator samples water quality and releases if within acceptable limits

Presented By:

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