MACTENN SYSTEMS LIMITED
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Ref: Customer Exchange for the handling of Sugar between Mr. Steve Cash of British Sugar who has a Mactenn Pneumatic Conveying System installed in the UK and Mr. Geoffrey Tann

Dear Steve Cash,

Good afternoon to you Steve, I was recommended by Michael Crawley from Mactenn to write to you directly regarding your experience of using pneumatic conveying system and aerobelt system in your sugar mill.

We are discussing with a sugar mill in Asia. Aerobelt has invited our client to visit one of the sugar mill in Australia and subsequently sent them a whole list of problem in using dense phase conveying system in handling sugar in that sugar mill. I have forwarded their comment at the bottom of my email for your comment.

Steve, could you please send us your comment regarding the following :-

1. How is your experience with dense phase blow tank system installed in your plant ?

2. Do you use it to handle caster sugar, white sugar, refine sugar, super refine sugar or more dedicated product in your plant ? Have you experienced any blockage during conveying ?

3. Any product degradation problem with sugar such as those problem experienced in Sugar Australia ? Will sugar loses its shininess after conveying ?

4. Is there many maintenance issue with dense phase system installed so far ?

5. According to aerobelt, there will be no contamination problem with sugar and is the best conveyor to be used in sugar mill application. They use cover to enclose belt and hence it is dust free. Michael said you have installed aerobelt in your Ipswich factory, could you please check and advise how is the performance of aerobelt as compared to dense phase conveyor in handling sugar ? Does Aerobelt meet both GMP and EU standard of cleanliness ?

For aerobelt, it requires air for fluidisation of the sugar which takes place continuously when the sugar is on the belt. Will constant bombardment of the sugar with air may causes excessive inter-particulate activity which leads to particle damage ?

6. Is there a lot of maintenance required for aerobelt system as compared to dense phase system ? However spare parts, is there more spare parts need to be carry than dense phase system ?

Your experience in both type of system will be valuable for our client to consider a more reliable system for their application.

Thank you in advance for your kind assistance.

Best Regards
Geoffrey TAN

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Dear Mr Tann,

I am pleased to respond to your questions concerning the use of dense phase blowing systems with sugar.

1. We installed a Mactenn blower in 1999 for transferring caster sugar from one bin to another and subsequently transferred it to blow sugar from a 1 tonne tipping point to another high level bin where it is still in daily use. The blower has been used to transfer granulated, caster, fine caster, medium and coarse sugar along with a number of sugar/ingredient mixes. Blockages occurred very occasionally in the original installation, this was overcome by reducing the feed momentarily, we have no blockage problems with the current set up.
3. We have undertaken screening analysis before and after blowing and not seen any significant degradation of product nor any change in the visual appearance.
4. Periodic replacement of the blowing seal and pinch valve seal.
5. My experience with aerobelts is limited. The one installed at Ipswich had the benefit of being relatively cheap and certainly did the job required however this factory no longer carries out this operation. The downside was a frequent requirement for maintenance and adjustment and the potential for contamination from the moving parts within the conveyor. As far as I am aware both systems fully enclose the product and comply with EU standards and Good Manufacturing Practice.
I don't have any information on damage to the sugar caused by fluidisation in aerobelts, we do use fluid bed coolers which do not degrade the crystal structure..
6. I believe the spares requirement and maintenance frequency are greater for the aerobelt than the dense phase blowing systems.

To comment briefly on the aerobelt response: our sugar is conditioned and dry so moisture is not an issue and we do not suffer from clogging lines or build up in bins.
It is quite true that the blowing air has to be discharged and de-dusted from the bin, this was no problem to us as we have adequate capacity in our dust collection system.
The explosion potential of the dense phase system has recently been reviewed and no additional protection has been recommended over and above a properly designed explosion vent in the bin and discharge through a rotary valve from the bin, which are standard for all our sugar conveying operations.

I hope this is of interest to you

Regards

Steve Cash

Dear Steve Cash,

Many thanks for your prompt response.

1. The system installed in your plant in 1999 - is a dilute phase system using blower or a dense phase system using blow tank and compressed air ? Please clarify.
Dense phase with blow tank and compressed air

2. Please advise what is the biggest capacity handled, is it more than 30 TPH in dense phase system ?
The plant runs at the design capacity of 6.6 tonnes per hour

3. Your comment on no change on visual appearance - is it implying sugar does not lose its shininess after being conveyed pneumatically ?
We have not seen any reduction in shininess although this is not a factor which our customers have ever commented on.

Thank you.

Best Regards
Geoffrey TAN