

RBC SERVICES UPDATE

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CONTROL RBC BIOMASS WITH THE SideCar SYSTEM

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Biomass control for mechanically driven RBCs has been a topic of previous RBC Service UPDATES. However, physical overloading of RBCs causes failures to media, media support systems and shafts which cost considerable time and expense to repair. Therefore, we feel this topic deserves additional attention.

RBC weight and biomass can be controlled and need not become a headache. Equipment failures generally shed a dim light on any industry in general. RBCs are a form of extremely reliable process equipment when the right devices and/or procedures are used to prevent mechanical problems.

Control of biomass thickness is a crucial aspect of RBC operations. It relates directly to both process efficiency and equipment protection.

RBC Process is at its optimum level when the operating weight of the unit is controlled at between 60% to 80% of the limit recommended by the manufacturer.

While there are several methods of controlling biomass thickness on RBC media, all but one disrupts the normal treatment process.

Discussed herein are methods used to control RBC weight and biomass thickness and respective affects on both process and equipment.

1.) ROTATION REVERSAL

On a rare occasion, RBC Services has recommended rotation reversal of an RBC to reduce weight. However, this procedure should be used only when absolutely necessary and should not be practiced on a regular basis.

As soon as biology begins to establish itself on new RBC media, the overall weight of the unit begins to increase.

When new, a 25ft., standard density RBC weighs between 19,000 and 22,000 pounds, depending on the manufacturer, with respective recommended operating weight limits ranging between 42,000 and 50,000 pounds. This difference of up to 28,000 pounds is the weight of the biomass being carried on the media and turned by the drive assembly.

Each time the RBC rotational direction is reversed, the unit must be stopped and then re-started. Upon re-start, the inertia creates considerable stress to the drive's speed reducer and the media at the point of contact to its support structure, whether it is a LYCO or Walker type tube support, a CLOW type cage support or media connected to a central hub type as on an Autotrol or Envirex RBC.

IF RBC ROTATION REVERSAL IS PRACTICED LONG ENOUGH, THE SPEED REDUCER, MEDIA STRUCTURAL SUPPORT SYSTEM AND/OR MEDIA WILL FAIL.

2.) STARVATION

In order for the starvation method to be effective, flow to the RBCs must be shut off while allowing the units to continue rotating for a minimum of two weeks. The lack of a food source will eventually starve the bacteria. The biomass will begin to slough from the media and decrease the weight.

There are no adverse affects to the equipment. But, few plants can afford to take RBCs out of service for that length of time to control weights on a regular basis.

3.) CHEMICAL ADDITION

Stripping biomass with chemicals is quick and effective, but should be limited. Care must be exercised during handling of chemicals and can affect the atmosphere, particularly inside buildings and other enclosed areas.

There are several chemicals which can be used, such as chlorine, caustic solution and hydrogen peroxide. While they have little or no adverse affect to the RBC equipment, most plants can not afford the resultant loss of treatment time.

Again in this case, the flow to the RBCs must be shut off. And keep in mind, chemicals will cause a complete kill of the biology. While the stripping procedure will take only 2 to 5 days, it may take approximately 4 weeks to re-establish normal process.

4.) AERATION

This point can not be stressed enough:

THE MOST EFFICIENT AND EFFECTIVE METHOD OF BIOMASS AND RBC WEIGHT CONTROL IS COARSE BUBBLE AERATION.

While maintaining an aerobic atmosphere for the biology and creating a more efficient process, the coarse bubble, diffused air scours the excess biomass from the media without disrupting the normal treatment process.

By controlling biomass thickness, the RBC process operates most efficiently while protecting the equipment from physical overloads which causes damage and/or complete failure.

At RBC Services, when it comes to being involved on a project or making repairs, we believe the job should be done once, and done right.

Understandably, most operators become quite upset when equipment fails. However, there is a definite problem which caused the failure.

RBC Services has been appointed national distributor for the **SideCar**, the most convenient and inexpensive RBC aeration system. The benefits gained and the ease of installation will allow you to improve process and protect the equipment quickly and economically. Please direct inquiries for the **SideCar** to RBC Services.

As always, if you are experiencing any problems with the RBCs at your plant or have any questions regarding their operation in general, give us a call. We can help.