Maximizing Process Efficiency Using Golden Batch Analysis

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Abstract

- Many batches are processed with limited or no real time visibility of adherence to ideal process parameters.

- Your operators can, and should, know how the current batch is progressing compared to a golden batch.

- Grantek Systems will present the Golden Batch planning board, and also present a Current Batch vs. Golden Batch comparison in real-time.
Agenda

• Presentation Outline
• Define a Terminology
• Grantek Overview
• Issues in Batching
• Components of the Golden Batch Tool
• Setting up a Batch with the Golden Batch Tool
• Running a Batch with the Golden Batch Tool
1. Today we will discuss the “Golden Batch” for a recipe.
   - How to derive the Golden Batch for recipes from historical data,
   - How to enable their operators to manage their current batch vs. the Golden Batch.

2. We will also discuss differences between a Golden Batch and a Best Batch.

3. We will understand that real time comparison of your current batch vs. Golden Batch is made possible by:
   - Displaying, real time, process performance of current batch to Golden Batch
   - Enabling your operators to adjust as needed, with real time information
Grantek Systems’ Golden Batch Tool

The Planning Board – Enabling you to BUILD a Golden Batch
Grantek Systems’ Golden Batch Tool

- Run Time Viewer – Enabling you to achieve a Golden Batch
Grantek Systems’ Golden Batch Tool

- The Rockwell Automation tools that make this possible are:
Grantek Systems Corporate Overview

- Grantek Systems is the only Rockwell Automation Solution Provider in the world certified at all levels:
  - Founded in 1980
  - 125+ employees
  - Principle Offices
    - Chicago
    - Allentown, PA
    - Toronto
    - Montreal

- Leading provider of Business Intelligence, Manufacturing Intelligence, and Automation Solutions for the Food and Bev, and Life Sciences Industries.
Grantek Systems Corporate Overview

- Grantek Systems is the only Solution Provider in the world that Rockwell Automation has certified at all levels:

- Michael Lohmeyer
  - Regional Sales Manager
  - Oak Brook, IL, Office

Grantek is the ONLY Rockwell Automation Solution Provider certified at all levels!
Manufacturers often experience differences in batches of the same recipe, while run on the same equipment. These differences are often either:

- Batch Quality
- Batch time

Analyzing these issues without a real-time operator tool is often a “rear view mirror” exercise.

- Interesting, but ..........

Grantek has developed a tool that enables you to build a Golden Batch from your historical best phases.

- More than just your “best batch”.
- You will build the Golden Batch from your best phases.
Grantek Systems’ Golden Batch Tool

- Do you find yourself asking questions like:

- Why did a batch take 30% longer on 3rd shift vs. 1st shift?
- Why did we scrap or rework 8 batches in October?
- Should it really take 20 minutes for the hand add step?
- Do we really need to mix for 14 minutes?
Grantek Systems’ Golden Batch Tool

• What is a Golden Batch - is it really attainable in my plant?
• How do my operators achieve it?
  – For a recipe, your process engineer builds a batch based on the best phases that your plant has ever done.
  – You have set the bar at an **attainable height**. Your plant has really performed at this level.
Grantek Systems’ Golden Batch Tool

• Grantek’s Golden Batch Tool will:

  • **Enable** you to build the Golden Batch from the best performance your plant has done on individual phases

  • **Enable** your operator with real time tracking of the current batch performance against the Golden Batch.

  • **Enable** your process engineer to mine process data easily for review of recent batch performances vs. Golden Batch.
• Value of the Golden Batch Tool.
Before running a batch....imagine the value of your process engineer mining your batch journal for the best phases ever run in your plant on that recipe...and building the Golden Batch!
Grantek Systems’ Golden Batch Tool

- While running a batch...imagine the value of your operator comparing each phase with the “best phase” your plant has ever done!
On a regular basis......imagine the value of your process engineer mining your recent batches / phases and looking for anomalies. E.g. Excessive time for
Components of the Golden Batch Tool.
Grantek Systems’ Golden Batch Tool

- The Golden Batch Tool
- Let’s examine the components:
• Setting up a Batch.
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- Let’s walk through the steps of setting up a Golden Batch
- Choose the recipe

- Select Batches from Historian
- By Batch ID
- By Date

- Highlight Batches for Comparison
Grantek Systems’ Golden Batch Tool

- Let’s walk through the steps of setting up a Golden Batch
- Choose the phases
Grantek Systems’ Golden Batch Tool

- Let’s walk through the steps of setting up a Golden Batch
- Set up Statistics and trending
• Running a Batch.
Let’s run a batch, and compare it to our Golden Batch
Grantek Systems’ Golden Batch Tool

• Let’s run a batch, and compare it to our Golden Batch
• The Gantt Area in Detail
Grantek Systems’ Golden Batch Tool

- Let’s run a batch, and compare it to our Golden Batch
- The Trending & Statistics Area in Detail:
Grantek Systems’ Golden Batch Tool

- Let’s run a batch, and compare it to our Golden Batch
Grantek Systems’ Golden Batch Tool

• Future
  – Control limits based on Golden batch process data. UL, CL, LL based on X standard deviations.
  – Notifications will be sent using the Notification Engine 4.1
Our goal is for users to be:

- **Enabled** you to build the Golden Batch from the best performance your plant has done on individual phases
  - Build Golden Batch
  - Set UL, CL, LL based on 6 Sigma of historical data

- **Enabled** your operator with real time tracking of the current batch performance against the Golden Batch.
  - Knowing real time current process parameters vs. golden
  - Prediction of where the parameter should be trending
  - Reduced lost or reworked batches
  - Improved quality