Overview:

• Brief description of the Molten Thymol Project. (2016 Workplace Solutions II, Engineering/Ergonomist-Driven Workplace Solutions, ERGO Cup® Winner)
  • Our Opportunity
  • Our Challenges
  • Our Solution
  • Our Achievements

• The Five Key Elements for the ERGO Cup®. (Note: You need to collect about a year’s worth of data for the 1st four elements.)
  • ERGO Risk Reduction
  • Innovation
  • Simplicity
  • ROI
  • Presentation

• How the Molten Thymol Project was able to pull these five key elements together to win the ERGO Cup®.
Workplace Solution II Engineering/Ergonomist-Driven Workplace Solutions
(No internal Ergo Competition) WINNER!

ERGO CUP Booth # 2016

MOLTEN THYMOL
An Innovative ERGO Solution

400 W Lincoln Ave, Lititz, Pa

Lititz is a Consumer Make Site for J&J
About 1.2 million sq. ft. (550,000 – Production & 650,000 – Warehouse)
Approx. 550 employees.
Avg. Yrs. of Service - - 20.2 Years
Avg. Age - - 48.4 Years

Listerine® is a registered trademark of Johnson & Johnson
MOLTEN THYMOL PROJECT

The Project was completed in Oct. 2014 and presented in the 2016 ERGO Cup® competition.

Our Opportunity:

• Eliminate the site’s #1 High Ergo Risk Task, involving the manual handling of 15 (20 kg) Boxes of Solid Thymol Crystals per premix batch.

• There were a number of injuries related to this task, including two Rotator Cuff injuries, a Hernia, and a Foot/Ankle sprain.

• The Thymol was delivered to the Mfg. platform in 20 kg (44.1 lb) solid blocks of crystals in Bags, in Boxes. Then the Thymol needed to be broken up with an aluminum baseball bat and/or a hammer, then lifted up from the floor to above shoulder height to be dispensed into a vessel man way.
Our Challenges:

• Thymol is one of the key active raw materials that are used in a premix which supplies a continuous automated manufacturing process for this high volume OTC product: Listerine®.

• Work had to be done in a high volume, high utilization, production area, which limited downtime for construction modifications.

• The area is a Class I, Div. 2 rated [Explosion Proof], and a PSM (Process Safety Management) area.

• The project team had to leverage diverse perspectives and talent to generate an Innovative Solution that would work.

• Many technical solutions needed to be evaluated before arriving at a possible solution. (Benchmarking)

• Years of formal and rigorous testing were required to prove that there would be no quality impact to the product, including pilot batches, manufacturing trials, stability testing, and validation.
Our Solution:
- Developed an **Innovative** and **Bold** way to handle this raw material by modifying its physical characteristics.

- Thymol now arrives in 125 kg (275.6 lb) drums and is heated in Hot Boxes at 50°C until the solid crystalline powder melts into a pourable liquid and is delivered to the Mfg. platform, where it is then dispensed in a vessel man way with the use of an XP drum lifter, rated for 300 Kgs.
MOLTEN THYMOL PROJECT

Our Achievements:

• The mitigation of the site’s #1 High Ergo Risk Task by eliminating four (4) High Ergo Risk Factors.

• Eliminated the manual handling of the solid blocks of Thymol in the manufacturing process; therefore, removing and preventing the possibility of any shoulder, arm, back, or other injuries.

• Reduced cycle time by 35% with increased premix batch sizes from 300 kg to 375 kg and reduced 1-1/2 labor hours. (Old method - 2 mixers/1 hour, New method - 2 mixers/15 min.)

• No interruption or impact to the High Volume Production of the Listerine® product.

• Completed under Budget.

• Zero Safety or Quality compliance issues since implementation of the project.

According to the raw material supplier, we are the 1st facility to take the Bold and Innovative approach of melting the Thymol for the use in a finished product.

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ERGO Risk Reduction:  Show and talk about your Data!
- Post your risk assessments or EJAs from before and after the completion of the project.
- Mention any previous injuries from this task before the project started.
- Show or demonstrate how bad the ergo risk was and how good the situation is after the project. *(use pictures or video)*

Innovation:  Showcase and talk about all of your challenges and how your innovative solution overcame those challenges!
- Show how your project clearly represents a newly created idea, device, or process.

Simplicity:  Show the intensity and complexity of the task before the project and how simple it is after the project.
- Show how your project simplified the task.
How to Win an ERGO Cup®
The Five Key Elements

**ROI:** Even if the project does not have a direct return on investment, show and talk about the benefits of the project from an increase in productivity, to operating efficiencies, cycle time reductions, or operators satisfaction, etc...

- Achievements.
- Benefits.

**Presentation:** Show the team-work. Make sure that everyone in the team is fully involved and engaged. Make sure that everyone is saying the same thing.

- Use video screens and have a three-minute video of before and after the project.
- Display the process by demonstration or by pictures or posters.
  - Show as much data as possible with different types of media.
- Be clear on your team’s message. (Again in pictures, posters, demonstrations, videos, and your conversation about your project)
- Make sure that you have giveaways.
- Make sure that you pull the people into your booth with your enthusiasm.
- Make sure that your team has a representative from all aspects of the task. (From operator, to engineer, to ergonomist)
Ergonomic Risk Reduction:

- Was the site's #1 High ERGO Risk Task
- Reduction in 4 High Risk Factors (Elbow Flexion, Lifting w/2 Hands, Trunk/Back Repetition, & Mech. Stress to Hands) alone with the elimination of Medical issues from the past (2 Rotator Cuff injuries, 1 Hernia, 1 Ankle Sprain)
- Prevention of future Shoulder, Arm, Back, and other injuries.
- Removing the need to smash raw material with baseball bats and hammers, lifting & dropping or lifting over-shoulder.
Innovation:
• Changing the physical properties of a key active ingredient of a high volume consumer product.
• Working in a Class 1, Div. 2, PSM, GMP, high utilization production area without any interruptions or impact to Listerine production.
• 1st facility to take the bold & innovative approach of melting this material (Thymol) for use in a finished product.
• There have been no Safety or Quality compliance issues since the completion of this project.

Simplicity:
• Went from 2 mixers, smashing & lifting 15 (20kg) bags, in 1 hour to 2 mixers dispensing a liquid material in 15 minutes using an XP rated Drum Dumper.

ROI:
• Reduced cycle time of this pre-mix process by > 35% by increasing the batch size from 300 kgs to 375 kgs and reducing the dispensing time.
• Project completed under budget.
**Presentation:**

- Project Story
- Before and After pictures
- Before and After EJA Posters
- Video playing in continuous loop
- Box of Thymol
- Box of Brochures
- Giveaways
- A before tool (Baseball bat)
- Samples of product

**Project Lead** – Gino D’Aurizio (not pictured)
**ERGO Site Lead** – Jeff Miller
**Operator/Mixer** – Jake Adams
**Ergonomist** – Marc Turina
The Team involved many more people.
Workplace Solutions II
Engineering/Ergonomist-Driven
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