Top Glove, Top Quality, Top Efficiency,
Good Health, Safety First & Be Honest

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Holes – Root Cause & Corrective/Preventive Actions. (Natural Rubber product)

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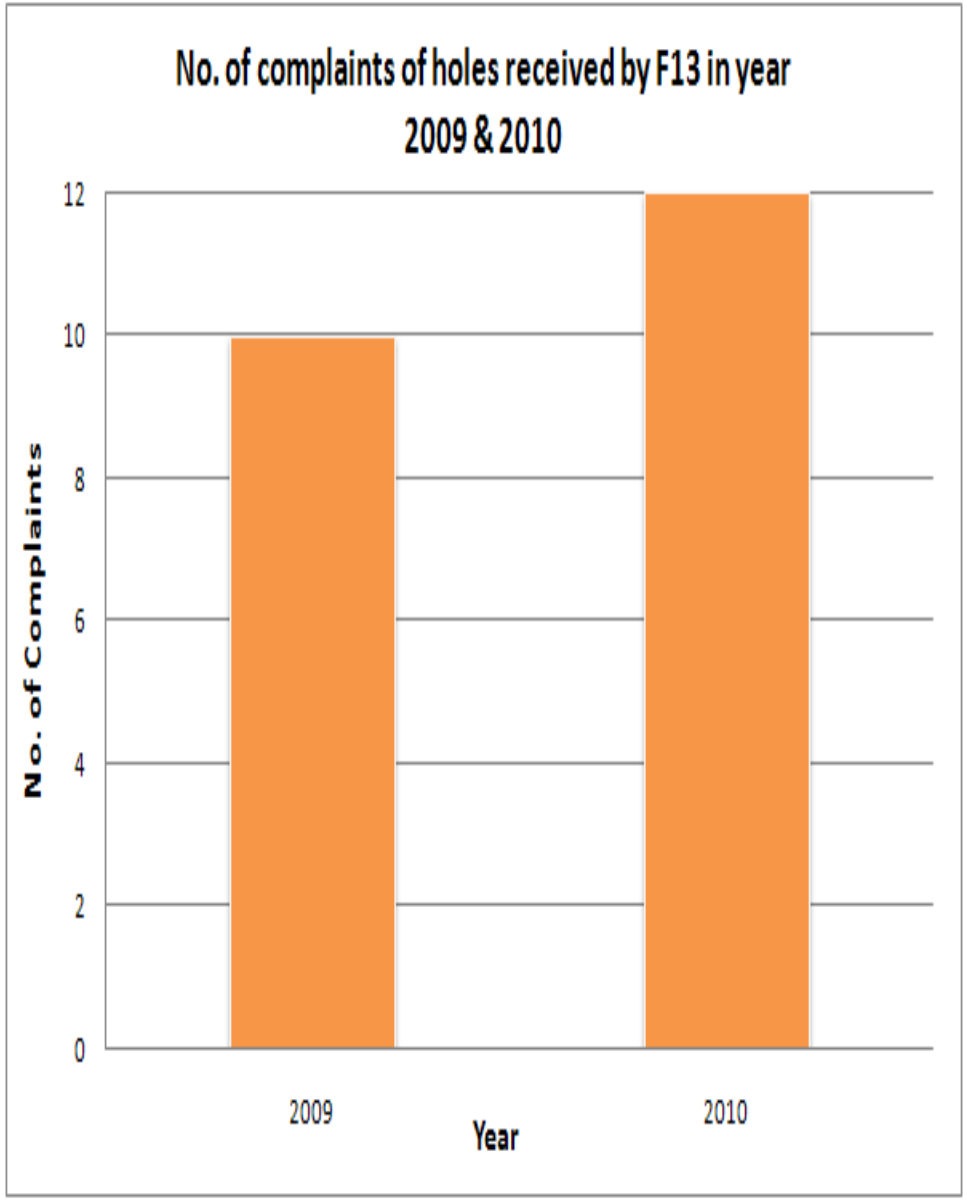
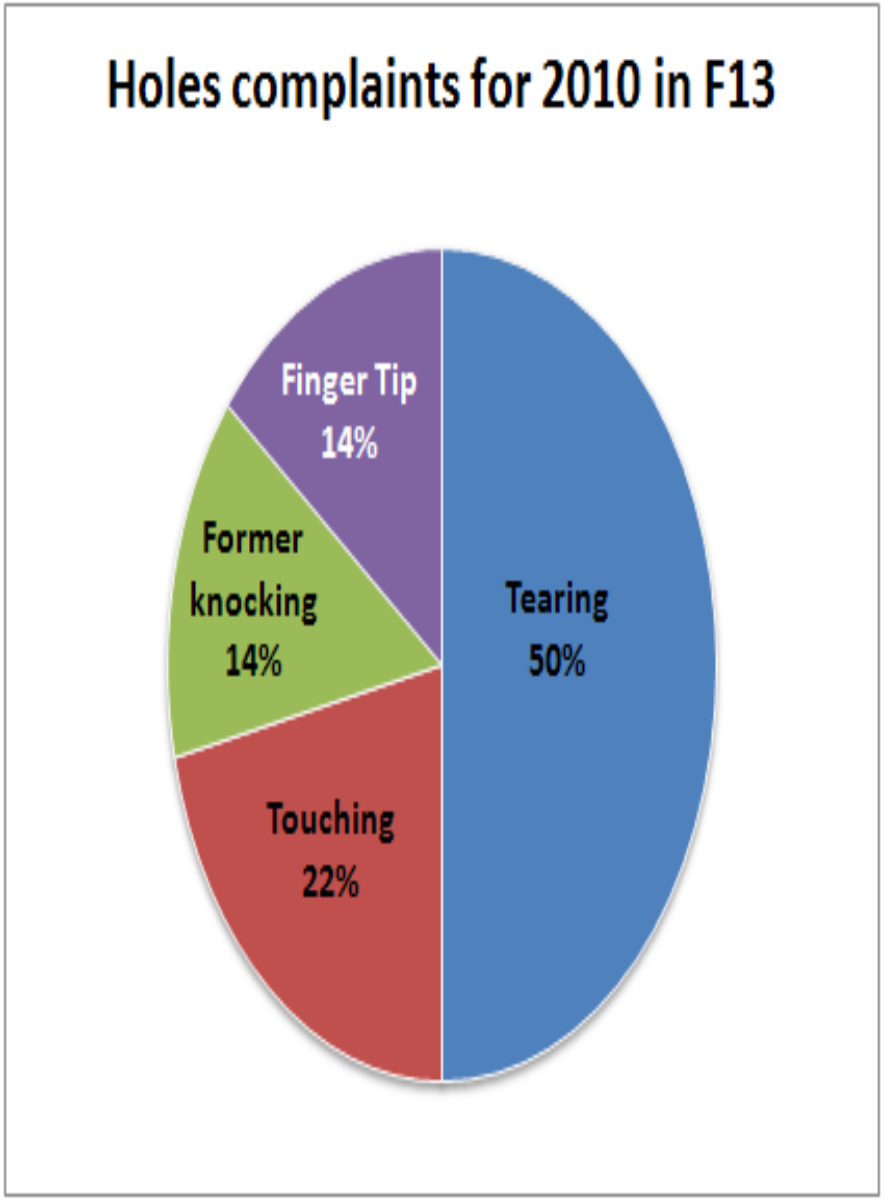
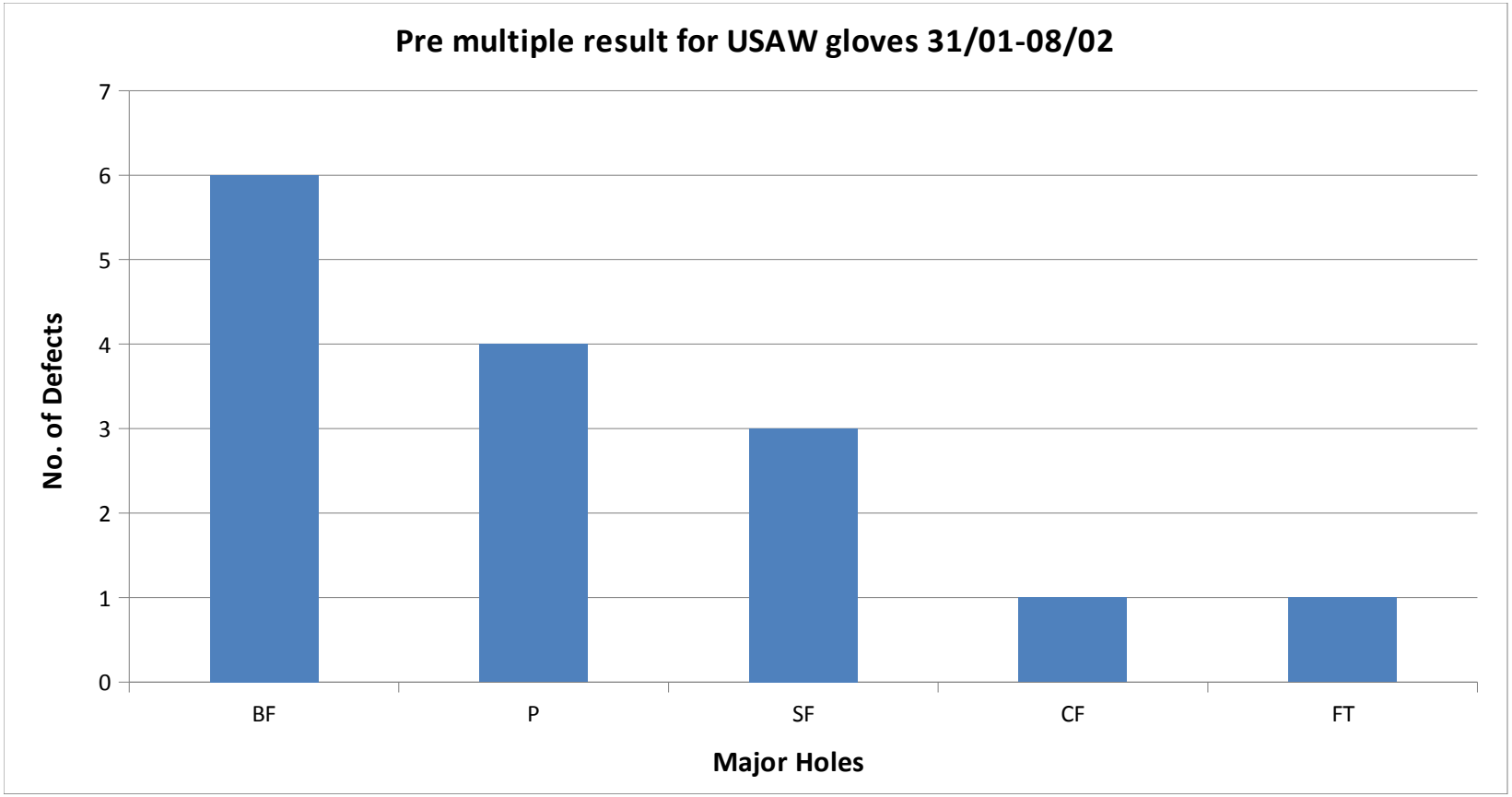
F2B/F10/F13/F21

Analysis of Customer Complaints





USA medical glove production (new product development from non-USA)



Based on the graph above, BF and P defects are the major defects found during pre multiple sampling for total of 17 lots inspected. A total of 5 lots failed due to the holes defects mentioned above.

Palm (P)

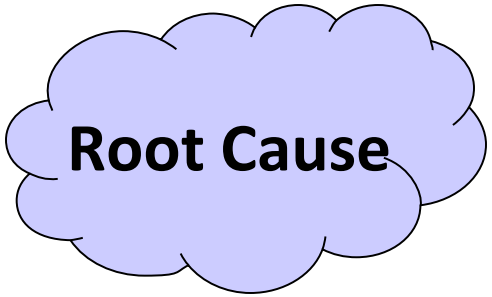
1. Alkaline bath dirty and unable to clean the residue chemical
2. Cyclaron 1 out of standard
3. Water rinsing tank water dirty
4. Ineffective brushing system.
5. Inconsistent water supply to water spray.

Side Finger (SF)

1. Low efficiency of oven to dry the side finger of former after coagulant.
2. Bubbles in coagulant tank
3. Former not rotating after coagulant and latex dipping
4. Inefficient former cleaning

Between Finger (BF)

1. Foaming out of standard
2. Ineffective brushing system
3. Former dirty
4. Bubbles in coagulant tank and uneven mixing for coagulant.
5. Efficiency of oven to dry the BF area.
6. Latex overcure.
7. Calcium nitrate out of standard.
8. Coagulant tank temperature too high.

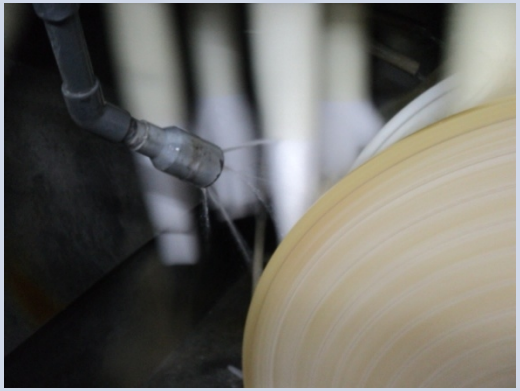


Improvement from non-USA to USA medical glove (Production line control)

Area	Remark
Former screening	• **Screened former every morning** while changing alkaline bath. Sorted out the defective former e.g. crack former, former with pimples, worn out former and former which contaminated with oil and dirt to prevent glove defect 
Alkaline Tank 1&2	• Prepared **record book** for changing alkaline solution once everyday • **Change alkaline bath once everyday** and prepared with higher percentage: **2.3-3.0%** to clean off the excessive Cyclaron-1 • Using **s/s float ball valve** to auto control the level of acid and alkaline 

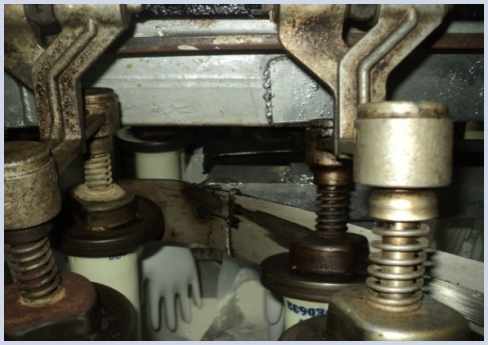
Area	Remark
Small Washing Brush	• Rotating brushes were lifted up until it is able to **wash BF** area effectively • To make sure water supply to **water spray is consistent** • The rotating speed was also adjusted until it reach the **optimum brushing** speed • Installed a **flip over on former track in SWB tank** to turn the former so that the former can be cleaned more effectively at both side

Area	Remark
Circular Brush	• Additional pump was installed to create a more **powerful water jet** to clean the former • The position of the water spray also adjusted so that it is able **spray on the former effectively**

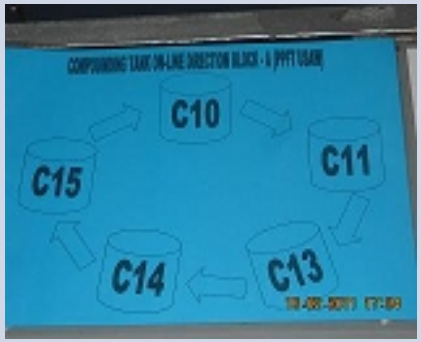


Area	Remark
Water Removal Brushes	• More brushes are added before coagulant dip to remove the water. All the brushes **were cleaned with water** when down line. This is to prevent the brushes from **hardening** and consequently spoiled 
Water Rinsing Tank	• Use **heated JBA water** in water rinsing tank as to avoid excessive burner usage in coagulant tank which might cause bubbles 

Area	Remark
Coagulant Tank	• Stirrer speed was maintain in between **500-600 rpm** • Cloth filter was placed after stirrer to **remove impurities** • Record book was placed to make sure that **magnetic stirrer rods are cleaned** for 3 times per shift • Topping up of chemicals (Foaming and etc) need to **dilute with coagulant** and to scoop the bubbles while adding it into tank and **record book** was prepared for any chemical added • To **minimize topping up** by changing the online coagulant composition which follow USAW spec. • All the items used in USAW line were indicated with **proper label** to prevent mistake • Implement **multi-layer filter** to filter the impurities before supplying to coagulant dip tank • Installed f**ormer guide with red belt after coagulant tank** to drip off excessive coagulant

Area	Remark
Latex Tank	• **Latex filter need to be cleaned** according to working instruction • Plate installation in between above and bottom former to prevent LL defect which cause by latex dropping • Extension of S plate to **prevent former knocking** with hollow bar • Addition of bumper to **jerk of excessive latex** after dipping to prevent LL defect • Installation of **auto shut off valve** to control the latex level and reduce lump formation • Installation of l**atex buffer tank** to reduce lump formation  

Improvement from non-USA to USA medical glove (Compounding and Chemical Preparation Control)

Area	Remark
Compounding Tank	• Having **separate compounding tank** for USA medical compound to prevent mistake • Conduct **spotcheck for stirrer speed** for new compound and online tank 

Area	Remark
Chemical preparation	• Having **separate chemical preparation tank** for coagulant powderfree, polymer, alkaline and acid to prevent from contamination • Installed **inverter to control stirrer speed** for coagulant powderfree. Used different stirrer speed to control new prepared tank, online tank, finish tank and half tank to prevent bubbles formation • Installed **Dosatron pump** to prepare polymer at more consistent percentage . **Auto flushing system** was installed for the Dosatron pump as well to prevent blockage by chemical sludge which might cause inaccuracy of preparation   

Conclusion and Recommendation:

Based on the history of customer complaints for F13 in year 2009 and 2010, the most holes defect found is Tearing (TR) which is 50% from overall percentage. In order to solve the this issue preventive and corrective action as below are very important:

- Maintain soft air jet pressure within standard
- Practice good former washing as to prevent former dirty
- Sufficient training to stripper
- Maintain oven temperature and former temperature before latex dip
- Maintain latex SI within standard

CONCLUSION AND RECOMMENDATION

- Base on QA pre-multiple sampling result for PPFT USA medical glove, the most defect found is BF followed by P and SF

- Our next planning to further improve the holes defect is by implementing :

Latex Double Dipping