



**TOP GLOVE, TOP QUALITY, TOP EFFICIENCY,  
GOOD HEALTH, SAFETY FIRST & BE HONEST  
F2A**

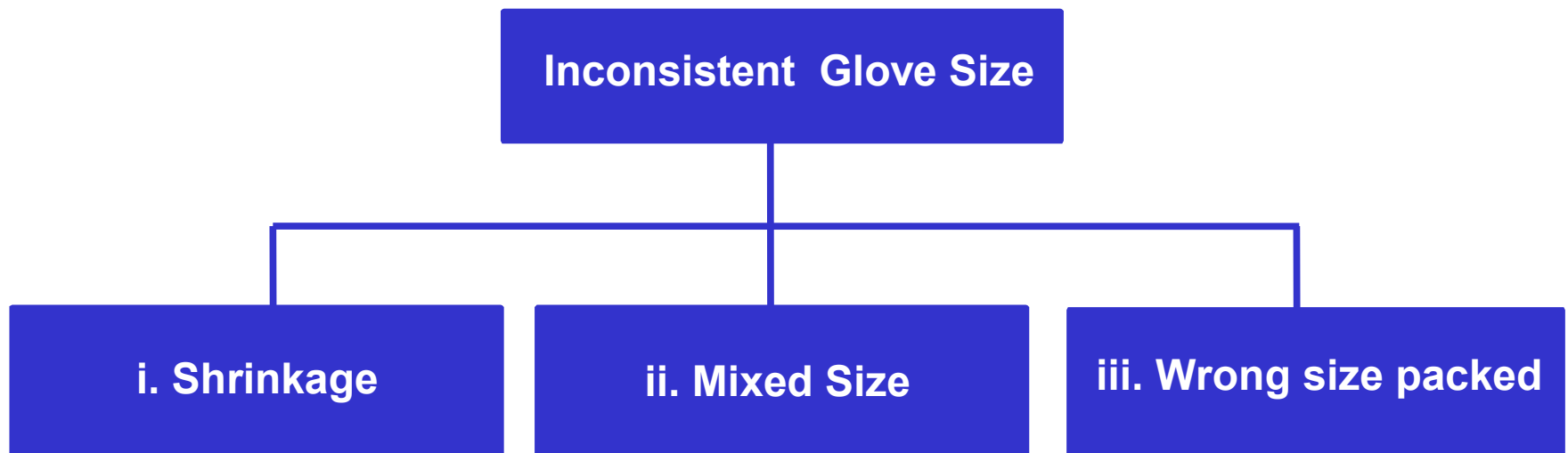
# **INCONSISTENT NITRILE GLOVE SIZE**



**Presenter:**

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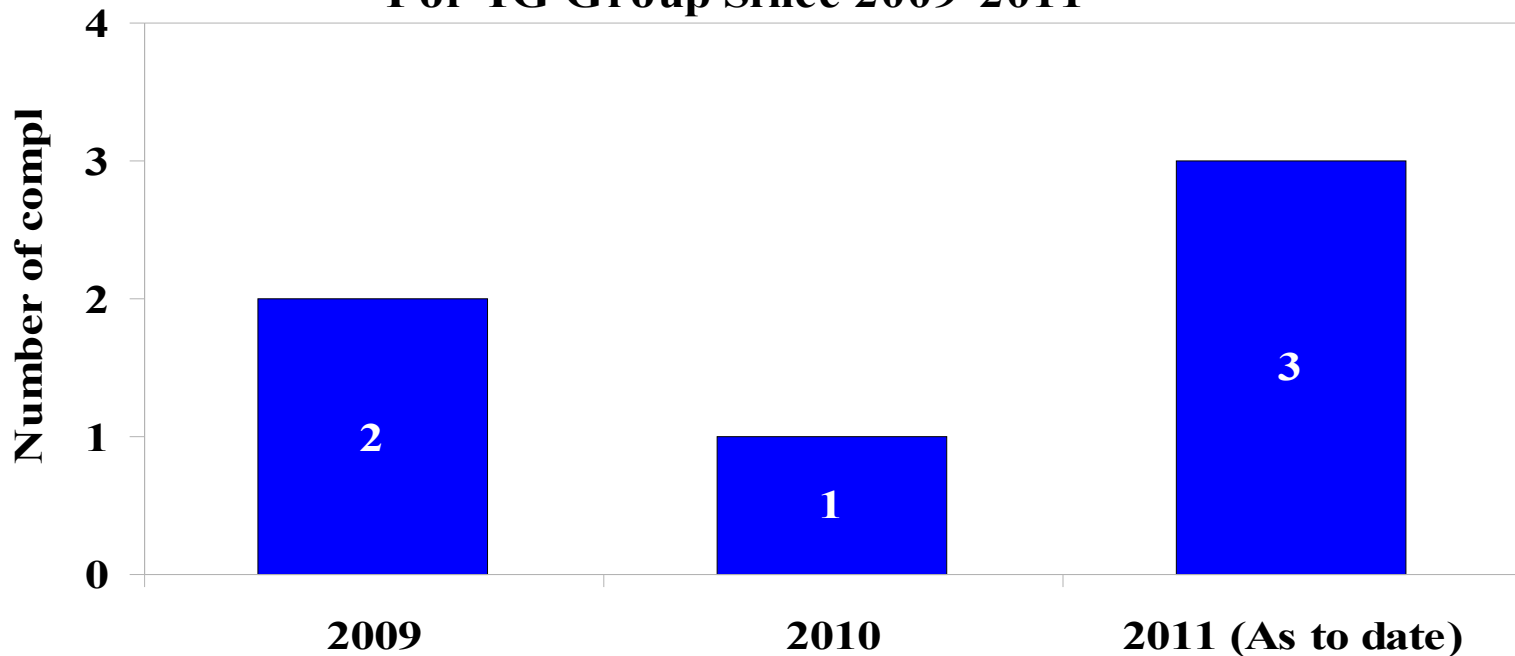
# 1.0 Inconsistent Nitrile Glove Size



## 2.0 Customer Complaint Analysis

### Total Customer Complaint Due To Inconsistent Nitrile Glove Size

For TG Group Since 2009-2011



	2009	2010	2011 (As to date)
Total number of customer complaints	18	77	30
Total complaints of inconsistent size	2	1	3
% complaints	11.11	1.30	10.00

## 3.0 Nitrile Shrinkage

- Refers to the natural properties of nitrile gloves that shrinks after production.
- The shrinkage % is normally about 1-3 %.

## Rate of shrinkage according to different types of latex(%)

Sample no	NANTEX (M SIZE)			PERBUNAN X2000 (XL SIZE)		
	Before aging	After Aging	Variance	Before aging	After Aging	Variance
	Palm width (mm)			Palm width (mm)		
1	100	99	1.00	119	117	2.00
2	100	99	1.00	120	119	1.00
3	99	98	1.00	119	118	1.00
4	98	97	1.00	118	117	1.00
5	98	97	1.00	119	118	1.00
6	98	97	1.00	119	118	1.00
7	99	98	1.00	119	117	2.00
8	99	98	1.00	119	118	1.00
9	99	97	2.00	119	117	2.00
10	99	99	0.50	120	119	1.00
11	99	98	1.00	119	119	0.00
12	98	97	1.00	120	119	1.00
13	100	99	1.00	119	118	1.00
14	99	97	2.00	119	118	1.00
15	99	97	2.00	119	118	1.00
Average	99	98	1.17	119	118	1.13
Shrinkage %			1.18			0.95

## Rate of shrinkage according to different types of latex(%)

Sample no	PERBUNAN X3001 (L SIZE)			POLYLAC (L SIZE)		
	Before aging	After Aging	Variance	Before aging	After Aging	Variance
	Palm width (mm)			Palm width (mm)		
1	109	108	1.50	97	95	2.00
2	109	107	1.70	96	94	2.00
3	109	107	2.00	97	95	2.00
4	109	107	2.00	96	94	2.00
5	109	107	2.00	97	94	3.00
6	108	107	1.00	97	94	3.00
7	108	106	2.00	97	95	2.00
8	108	107	1.00	97	94	3.00
9	110	108	2.00	97	95	2.00
10	109	107	2.00	97	95	2.00
11	108	107	1.00	97	95	2.00
12	108	106	2.00	98	95	3.00
13	109	107	2.00	97	95	2.00
14	109	108	1.50	97	94	3.00
15	110	108	1.70	97	95	2.00
Average	109	107	1.69	96.9	94.6	2.33
Shrinkage %			1.56			2.41



## 4.0 ROOT CAUSES

## 4.0 Root Cause

### MAN

#### i. Shrinkage

- Main oven do not set according to the standard (PIC: machine operator)

#### ii. Wrong size packed/ Mixed size

- Packer – Forget to check size and inner.
- Tumbler boy – Wrongly issue tumbler tag after production.
- Quality inspector – Wrongly swap tumbler tag after inspection.
- Online stripper/ Packer – Overlook changing size of formers.
- Former boy – Plug in the wrong size of former.

### Inconsistent Size

### METHOD

#### i. Shrinkage

- Insufficient curing of glove.

#### ii. Wrong size packed/ Mixed size

- No gap between different sized formers which caused stripper unable to identify changes in size (online).
- One table pack more than one size (offline).



## 4.0 Root Cause

### Inconsistent Size

#### MATERIAL

##### i. Shrinkage

- Raw material of NBR latex with high/ abnormal shrinkage rate.
- Compounded latex with low maturation hour.

##### ii. Wrong size packed/ Mixed size

- Former dimension – Palm width not within standard (glove produced either lower or higher than standard).

#### MACHINE

##### i. Shrinkage

- Main oven trip.

##### ii. Wrong size packed/ Mixed size

- Line has too many sizes of formers.



# 5.0 CORRECTIVE & PREVENTIVE ACTIONS

## 5.0 Corrective & Preventive Actions

### MAN

#### i. Shrinkage

- Main oven trip to be repaired immediately by maintenance

#### ii. Wrong size packed/ Mixed size

- Packer – To check size and inner correct before packing.
- Tumbler boy – To issue tumbler tag appropriately and double check again.
- Quality inspector – To carry out inspection and avoid mixing of tumbler tags.
- Online stripper/ Packer – To be alert on the changes of former size when stripping/ packing.
- Former boy – To follow former changing plans accordingly to avoid plug in wrong former.

### Inconsistent Size

### METHOD

#### i. Shrinkage

- To adjust main oven setting according to standard to ensure optimum curing of glove.

#### ii. Wrong size packed/ Mixed size

- Different size formers plugged within a line should be separated with gaps to allow easy identification for changes in size by stripper (online).
- To fix one table to pack only one type of product, one type of size only (offline).

## 5.0 Corrective & Preventive Actions

### MATERIAL

#### i. Shrinkage

- To ensure the NBR latex used (especially new latex) has low/ within standard shrinkage rate to avoid issues of inconsistent size.
- To make sure latex is compounded according to the standard maturation hour range.

#### ii. Wrong size packed/ Mixed size

- Former department and IPQC to check incoming formers and make sure former dimension (palm width) are within standard.

Inconsistent Size

### MACHINE

#### i. Shrinkage

- Main oven trip to be repaired immediately.

#### ii. Wrong size packed/ Mixed size

- To fix only 2 different sizes per side in one line.



**THANK YOU**

**TERIMA KASIH**