

## Quality Assurance Manual



## **1. Purpose**

The purpose of this manual is to specify and document the Quality Assurance System of Netprotect®. The Quality Assurance System (QAS) consists of this manual and standard operating procedures (SOP) for each process. Recording according to QAS is done in special developed IT based input systems.

## **2. Quality policy**

Intection® has a holistic view on quality.

Intection® is in the business of developing, producing, marketing, selling and distributing articles for control of malaria and other endemic diseases. We see our quality assurance system as one of the most important tools to secure delivery of the right product, at the right place, at the right time and at the right price.

In product development the QA system will help minimize the time to market and guide the development in the direction of the most suitable and sustainable solutions.

In the production the QA system will make sure that quality is an integral part of the product from raw material to packing material. The QC procedures will make sure that errors are minimized and that traceability will help identify areas for improvement and thereby creating the foundation for the zero defect strategy.

In marketing and sales, quality means speedy and reliable replies, easy access to necessary and valuable information.

Quality in logistics is about making sure goods are handled as efficiently and reliable as possible. This means continuous evaluation of the performance of our shipping partner and developing the relationship in a direction as to fulfil the need of our customers.

## **3. Quality goals**

- Right product – all products fulfil the requirements set down in the Quality Matrix (Appendix 1)
- Right place – Goods are delivered according to the instructions of the customers
- Right time – Through establishment of efficient and appropriate production planning and control tools, reliable delivery schedules can be given to the customers

- Right price – Intection® will continuously strive to improve efficiency in production, raw material procurement and consumption and will implement suitable technology to ensure competitive prices to the benefit of our customers

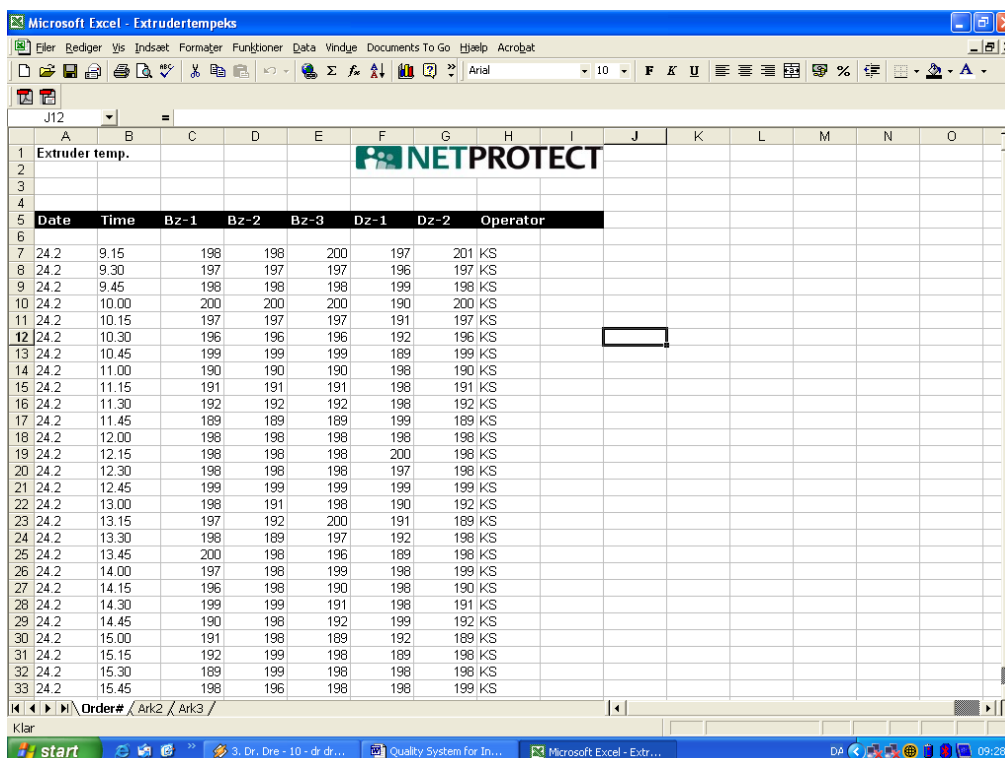
#### 4. Tactical level – Standard Operating Procedures (SOP)

As a tool to build in quality of Netprotect® in the manufacturing process, SOP's for each an every sub process of the manufacturing process has been established. These SOP's will make sure that everyone involved in the manufacturing process has a common view on how the different sub processes should be handled. An example of the SOP for extrusion can be found in Appendix 2.

The quality matrix establishes the foundation of the quality of Netprotect®. Through this QA system it is ensured that all Netprotect® leaving our factories will fulfil the specifications listed in the Quality Matrix.

#### 5. Documentation

Every measure mentioned in the Quality Matrix has to be typed in the Quality IT-system. This is done for documentation and to keep track of the deviation in the different processes. A snapshot for the documentation is illustrated below.



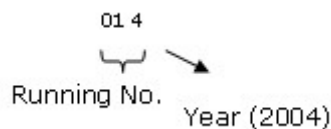
Date	Time	Bz-1	Bz-2	Bz-3	Dz-1	Dz-2	Operator
24.2	9.15	198	198	200	197	201	KS
24.2	9.30	197	197	197	196	199	KS
24.2	9.45	198	198	198	199	198	KS
24.2	10.00	200	200	200	190	200	KS
24.2	10.15	197	197	197	191	197	KS
24.2	10.30	196	196	196	192	196	KS
24.2	10.45	199	199	199	189	199	KS
24.2	11.00	190	190	190	198	190	KS
24.2	11.15	191	191	191	198	191	KS
24.2	11.30	192	192	192	198	192	KS
24.2	11.45	189	189	189	199	189	KS
24.2	12.00	198	198	198	198	198	KS
24.2	12.15	198	198	198	200	198	KS
24.2	12.30	198	198	198	197	198	KS
24.2	12.45	199	199	199	199	199	KS
24.2	13.00	198	191	198	190	192	KS
24.2	13.15	197	192	200	191	189	KS
24.2	13.30	198	189	197	192	198	KS
24.2	13.45	200	198	196	189	198	KS
24.2	14.00	197	198	199	198	199	KS
24.2	14.15	196	198	190	198	190	KS
24.2	14.30	199	199	191	198	191	KS
24.2	14.45	190	198	192	199	192	KS
24.2	15.00	191	198	189	192	189	KS
24.2	15.15	192	199	198	189	198	KS
24.2	15.30	189	199	198	198	198	KS
24.2	15.45	198	196	198	198	199	KS

**Figur 1 Shapshot for extruder temp. documentation**

## 6. Tractability

### 6.1. Master batch (MB)

Each batch of Deltamethrin containing MB receives a batch code consisting of a two-digit running number and a single-digit year indicator:

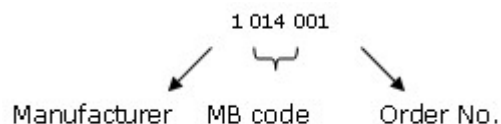


**Figure 2 Batch code**

One sample for each one metric ton (MT) of MB is sent for chemical analysis and the active ingredient content determined. A logbook is kept establishing which batch of Deltamethrin technical grade raw material was used for the batch. If a new batch of Deltamethrin technical grade is put in use during production, the batch number of the MB is changed to the next higher running number, i.e., from 014 to 024.

### 6.2. Net material

The batch code of the Deltamethrin containing MB follows the yarn from extrusion through production. When the yarn is knitted and, finally, the net material is cut and sewn into finished nets, the MB code is used as the basis for the production code:



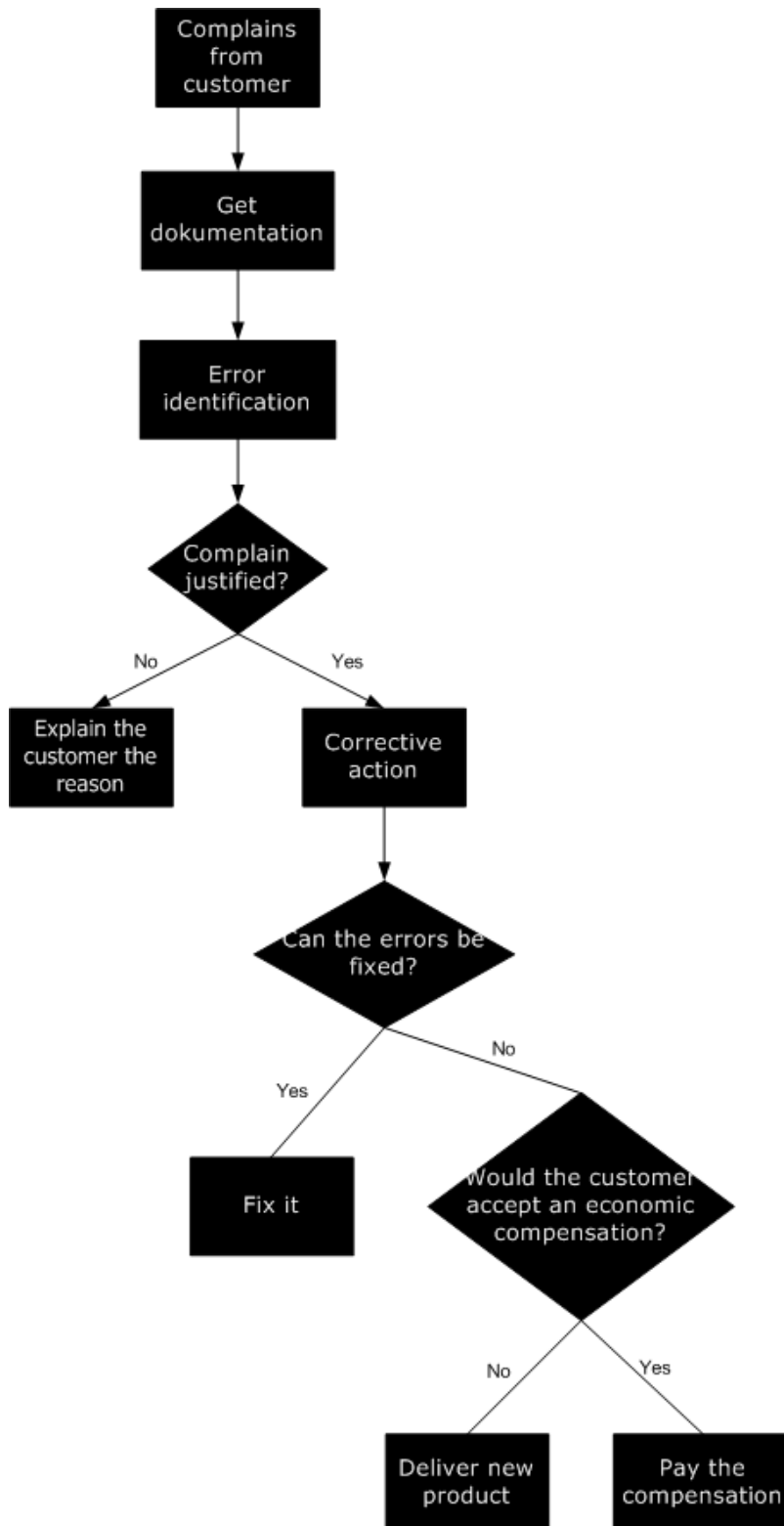
**Figure 3 Production code**

The production code is printed on the care label of each net. With this code, all QC data for this particular production batch can be traced.

## 7. Employee involvement

Quality implies involving people who are directly in touch with the manufacturing process. This is achieved by communicating the content of this QA manual in the organization and targeted training activities. Furthermore the SOP's for the sub processes are available to all personnel for easy reference.

## 8. Complaint procedure



**Figure 4 Complaint procedure**

All complaints are handled directly by Intection®. Respond within 24 hour, and case closed within a month.

### **9. Procedures for quality implementations**

Intection® will, in close cooperation with the manufacturer, define the quality and specifications of Netprotect®. The quality requirements of Netprotect® is materialized in SOP's for all sub processes and the Quality Matrix these are then communicated in the production organization and implemented by the management of the manufacturer under supervising of Intection®.

Characteristics	Location	Measure	Standard	Deviation	Who	Recording	Method
<b>Extruder temp.</b>	Extruder	°C	220	Max.	Operator	Every 15 minutes	Instrument
<b>MB (NPTD1 5%)</b>	Before	Content of Deltamethrin g/kg	50	± 10%	SGS - Chennai	New batch of NPTD1: Take 2 samples from different bags and send to SGS-Chennai	Chemical analysis special test
<b>Yarn thickness</b>	During, extruder	mm	0,12	± 5%	Operator	Measure every 15 minutes for 3 secs. The needle has to be stable within the deviation (±0,05 mm).	Instrument
<b>Mesh</b>	During, knitting	Holes/inch <sup>2</sup>	136	± 5%	Supervisor	Every 2. hour.	Instrument/visual
	During, knitting		200	± 5%	Supervisor	Every 2. hour.	Instrument/visual
<b>Fabric width</b>	During, heat setting	cm	150	± 2%	Operator, heat setting	Continuously. Record every hour. Measure with scale.	Instrument

Characteristics		Location	Measure	Standard	Deviation	Who	Recording	Method
<b>Bursting strength</b>	<b>Mesh: 136</b>	Final	KPa	375	Minimum	IT-Lab	Hourly	ISO 2960
	<b>Mesh: 200</b>	Final	KPa	400	Minimum	IT-Lab	Hourly	ISO 2960
<b>Insecticide concentration</b>		Final	g / kg	2,0	± 20%	SGS-Chennai	1 yarn / shift	Chemical analysis special test
<b>Material weight</b>	<b>Mesh: 136</b>	Final	g / m <sup>2</sup>	35	± 10%	IT-Lab	1 sample / heat setting	Instrument
	<b>Mesh: 200</b>	Final	g / m <sup>2</sup>	41	± 10%	IT-Lab	1 sample / heat setting	Instrument
<b>Dimension stability</b>		Final	%		± 10%	SGS-Chennai	2 samples / order or 1 sample / 20.000 pcs	ISO 5077
<b>Dimension</b>		Final	%		± 5%	IT-lab	10 samples / order	

**Yarn thickness** Appendix 2

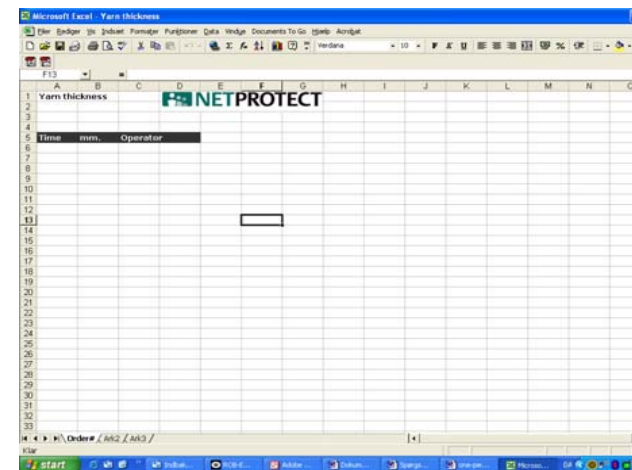
Characteristics	Location	Measure	Standard	Deviation	Who	Recording	Method
Yarn thickness	During, after extruder	mm.	0,1 mm.	± 5%	Operator	Measure every 15 minutes for 3 sec. The needle has to be stabile within the deviation ( $\pm 0,05$ mm).	Instrument



**Figure 1** The instrument to measure the thickness



**Figure 2** Take the filament and measure the thickness



**Figure 3** Type in the measure