

## QUALITY PROBLEMS IN “EL REY DEL LANGOSTINO”<sup>1</sup>

Ignacio Iriarte headed for his office in “El Rey del Langostino” plant, located in Milagros, in the province of Burgos, where he had been hired as Director of Total Quality Management<sup>2</sup> a month earlier. The previous week he had been attending a quality seminar in Santander taught by the training department of the parent company to production plants quality managers of the Cantabrian food group. Ignacio wanted to be involved into the quality problems that plant in Burgos had. The plant produced prawn, octopus and mussel-based products and employed 120 workers.

Ignacio went to Miguel Herrero’s office, his immediate subordinate (manager of Total Quality Management), and asked him about how things had gone the week before. The silent smile of Miguel and a “*Hmm. Ok*” as a simple answer shocked Ignacio. He did not know Miguel very well and he was not sure if he should dig into his answer. He did not know how to start the relationship with Miguel either, as he had not been promoted to Ignacio’s position. Miguel’s evaluation showed that he “*had excellent technical knowledge but deficient executive skills*”. Finally, Ignacio dared to ask Miguel a little more about what happened. Miguel answered:

*“Well, it’s just another typical case of quality chaos. We had a small problem in the modified atmosphere prawn line packaging last week. We found that the hermetic sealing integrity was not 100% in some packages used in the second shift, although it was within the customers’ demanded limits. However, the controller personally separated and reprocessed the batch on the production line in order to deliver it. So there was not any problem: we met the delivery schedule.”*

Since Ignacio was not familiar with the plant, the processes and the products, he asked Miguel to come back an hour later in order to explain in more detail the event and thus be able to consult the documents he worked on last week during the training

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<sup>1</sup> Case by the Research Division of the Instituto Internacional San Telmo, Spain. Prepared by Professor Miguel Ángel Llano Irusta, for use as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation.

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<sup>2</sup> Total Quality Management (TQM) is a management strategy pointed to create quality awareness in every organizational process. TQM has been widely used in manufacturing, education, administration and service industries. It is known as “total” because it affects to the organization of the company considered as a whole and to people who work in it.

course. He reviewed the information about the Modified Atmosphere Packaging (MAP, see Exhibit 1 diagram) and he remembered the following:

*“Extending fresh fish and seafood (prawns and shrimps, for example) use-by dates is a real challenge due to the special nature of the product and the existence of many types of fish with different characteristics and, therefore, different packaging requirements.*

*Fish and seafood-meat contain low carbohydrates or none in such a way that bacteria present in fish guts and gills start working very fast on tissue proteins.*

*Meat enzymes also start breaking down tissues. Fish and seafood tissues are high in neutral pH water (neither acidic nor alkaline); these conditions favour high bacteria and enzymes activity that produces deterioration. As a result, several chemical substances are produced which give rotten fish and seafood their characteristic unpleasant odour.*

*One of the biggest challenges for choosing an appropriate protective atmosphere, which prevents growth of bacteria, is that some microorganisms are aerobic (they grow in an oxygenated environment) while others are anaerobic and the absence of oxygen encourages their growth. Therefore, a careful balance is needed.*

*Seafood, like shrimps and prawns, are packaged in an atmosphere that usually contains only carbon dioxide and nitrogen. For that reason, and using the appropriate cooling conditions, use-by dates may be doubled or even tripled, from just a few days to two and three weeks in some cases.*

*Modified atmosphere packaging is a process that modifies the atmosphere surrounding the product through a change of normal air composition. It may be an effective technique to delay microbial spoilage and oxidative rancidity onset in fish and seafood. Generally, a gas/product 3:1 ratio is recommended. Any variation of this ratio might reduce the use-by date to a date lower than expected.*

*Maintenance of the correct combination of injected gases into modified atmosphere packages is essential to ensure quality, appearance and use-by dates. For that reason, monitoring process has to include routine gas analyses of modified atmosphere packages.*

*These analyses may indicate faults related to hermetic sealing integrity, MAP materials, used machinery or mixture of gases prior to flushing. The use of continuous gas analysers is recommended. Analysing gases immediately after the packaging process is required, as CO<sub>2</sub> absorption takes places rapidly.*

*MAP packages hermetic sealing integrity is a critical control point because it determines whether a package is vulnerable to external microbial*

*contamination and to air dilution of the gas mixture.*

*Essential checks on heat sealing should verify the appropriate alignment of the sealing lips, dwell time, temperature, pressure and machine speed. The seal area shall be checked in order to detect if it's contaminated with product, product drip or moisture, since it may reduce seal integrity. It is also important to check the quality of the film used, especially regarding gas permeability; only film with a clearly defined specification produced by reliable manufacturers shall be used".*

After having reviewed the documents about MAP, Ignacio felt uneasy, so he called Miguel to ask him for more details about the previous week's event on the packaging line. Miguel said:

*"We have had a few problems with the new MAP equipment of the prawn production line and some batches have been below the strict limits of air-tightness demanded by the company, although they were within the standards required by customers. Present production of 1,400 packs per shift is still 50% lower than expected. Halfway through the shift, the quality inspector Marco Estévez identified the problem, so he classified and labelled the packs which were below the limits.*

*When the shift ended, he came back to write down what had been rejected but the line controller Guillermo Salinas was next to a stack of products and he was sealing a prawn pack which had been previously rejected and which no longer had the "Defective" labels. He told Marco that during the break, another inspector had told him about the air-tightness limit event and that he had come back to reprocess the prawns. He also told him that Christmas was just around the corner and it was the peak demand period, so Production Planning Department was intensely pressuring him to deliver goods and that he could not be delayed by sending goods back again to the reprocessing area, as the procedure indicated. He also told Marco that the next time he would look after the process in order to assure that the MAP machine operator properly operates machinery. Marco did not write it down but he came to see me to tell me everything three days ago. As happens very often, I told him that he needed to talk with the Maintenance Department to have the machine adjusted. Then I saw Guillermo in the corridor and I told him that he had to send goods back to the reprocessing area next time".*

Ignacio was stunned and did not answer anything; he did not know that it would be so challenging. When he arrived at his office he thought about what the General Manager (Ernesto Díez) had told him when he recruited him: *"Ignacio, we have an immense lack of quality responsibility in the plant and you have to do something about that. We need to improve our quality. I am sure that this costs us a lot of money although I cannot demonstrate it. Ignacio, you have my full support: take charge of it and take responsibility of quality problems. You have to end that vicious circle where non-quality costs reduce our productivity".*