

Leading Food Production Plant

adopts Traka for Process Control as part of its Continuous Improvement Management programme.

A 'near miss' is a lucky escape in any circumstance. It's a time to reflect, to see if lessons can be learnt – trying to ensure that the same situation doesn't occur again. As part of a Continuous Improvement Management programme, a leading food manufacturing plant turned to Traka to implement a process control solution for this very reason. An incident, had it happened, would have cross-contaminated raw products, and would almost certainly have cost the organisation more than 250,000 Euros – both in terms of ruined bulk and in lost productivity through downtime. We explore the background to the issue, how the process control solution has been implemented and the safeguards it has enabled.



Both the Continuous Improvement Manager and the Production and Engineering Manager explain the circumstances surrounding the near miss and how that situation has now been safe guarded. The factory, which makes a special compound (of which there are over 20 different variants), exports all over Europe, and uses a range of different bulk ingredients. The factory, newly opened, is considered as a world class manufacturing show case for 'Lean Manufacturing' and a best practice reference site for other food processing plants.



Bulk Unloading Process Control

Bulk raw materials (liquids and powders) typically arrive on-site by tanker daily, even overnight sometimes, and need to be unloaded promptly into the bulk storage tanks. The 'near miss' incident occurred when an expected tanker arrived out of sequence with other tankers scheduled to arrive that day. The bulk material was correct but, because it was out of sequence, it was connected via the individually colour-coded hoses to the wrong storage inlet valve, potentially causing cross-contamination. It was Traka's previous experience in process control management for the petrochemical industry that put them in such a strong position to assist the organisation to overcome this potential point of failure.

Under industry accepted GMP (Good Manufacturing Process) standards and SOP (Safe Operating Procedures), there are numerous conditions that need to be met in the food production industry.

For example:

- There must be a colour coded hose specific to each bulk material to prevent contamination.
- Hoses need to be locked and capped, even when not in use, to ensure quality control and hygiene regulations.
- Access must be controlled to both the Hose and the Silo Tank to ensure only trained personnel can use them.
- Each delivery of bulk material must be 'approved' prior to delivery, based upon paperwork and certificates sent in advance from the manufacturing supplier, which details purity and manufacturing quality.

It is the responsibility of the Quality Team to check the paperwork and approve the delivery, prior to its acceptance.

The delivery process is thus managed in three stages:-

- Pre-delivery paperwork – via Traka Intelligent Lockers - by using the Key Booking by Reference feature
- Key control – to access the correct hoses - via a Traka M Series – by using the Dual Identity feature
- Key control – to start the unloading pumps – via the Traka M Series – by using the Key Pairing feature

Some 24 hours before delivery, the consignment's advanced paperwork arrives. This is inspected and, upon meeting appropriate standards, is accepted. The approved documentation is placed in an office-based Traka electronic locker (known as the document control cabinet) along with a Product Identification Card (which is a colour-coded Proximity Identity Card) and the Tanker's numeric reference number. Access to this bank of intelligent lockers is by numeric PIN code, so only authorised staff can now access this information. At any one time, there may be several locker compartments in use, each with a specific set of documentation for a future scheduled delivery.



Upon Tanker arrival, the operator takes paperwork from the driver and notes the Tankers unique numeric reference number. This number is now keyed-in as a PIN code to the locker keypad and, because of the Key Booking by Reference feature, the appropriate locker compartment door automatically opens. This process ensures that only the correct paperwork is taken from the locker, and that only the correct colour-coded Product Identity Card is made available. The two sets of paperwork are matched and the Product Identity Card is taken for use down at the Bulk Unloading Dock. A big advantage of this process, commented the management team, "...is that it removes real time pressure and alleviates the possibility of mistakes being made, such as picking up the wrong paperwork, especially if several tankers arrive together."

Once down at the Bulk Unloading station, the operator accesses a Traka M Series (20 key) system. Two cards are needed to access this Key Management cabinet; the personal Identity Card of the operative (to declare his/her identity and authorisation to access the system) and the colour-coded Product Identity Card (as released from the document control cabinet). This card pairing sequence firstly cuts out any risk of an unauthorised operator unloading bulk when not fully trained and assigned as competent to do so and, secondly it ensures that only the correct key is



released to access the hose for that specific bulk delivery. The Traka cabinet (and software) automatically records the identity of the operative, the time and the particular key released – it also records the same information when the key is later returned. The operative who takes the key is ultimately the person who accessed the paperwork and Product Identity Card, and checked it against that of the documentation arriving with the Tanker. There is a full electronic audit of who made the approval and who took the key to unload the materials.

Taking the key from the Traka cabinet, the operator proceeds to the hose storage area. Colour-coded hoses are retained in long storage pipes, capped and locked in place. The key just released from the Traka cabinet (specific to the product) will only permit the correct hose to be released from storage. The hose is connected to the Tanker and the same key is used a second time to enable the hose to link to the correct (capped and locked) inlet pipe of the bulk storage tank.



Thus far, the process is controlled using a Product Identity Card that will only release a key to access the appropriate hose and free the cap of the correct inlet valve.



Once the hose is securely connected and locked in position, the operator returns to the Traka cabinet to replace the hose key. Again, access to the cabinet requires identification and, on replacing the first key, through a process known as 'key-pairing', a second key (logically linked via software) is automatically released. This second key is taken to start activation of the pump, via the unloading valve, controlled through the HMI Screen, ensuring that product can only be pumped into the correct storage silo.

With typically 2 or 3 bulk deliveries a day, each containing some 20-25,000kg of raw materials, the Traka process control solution cuts down on administration time, it ensures the correct delivery and matching of documentation, it removes any complications and makes the whole process standardised and easier to manage.

Fork Truck Control

In addition to process control, Traka is also utilised to control access to all Fork Lift trucks on site, plus a range of other vehicles such as VNA trucks and floor washers, using an S Series system. "Complying with Health and Safety legislation is paramount in our facility; by utilising Traka we can now restrict access to fully trained and authorised drivers only. Previously all trucks were set up to work from one key design. This often made it difficult to determine who was responsible for a particular truck at a point in time. Since being installed, Traka has immediately resulted in significantly less damage to trucks and infrastructure, such as barriers and pillars. Prior to implementing Traka the level of incident reporting was not as high as we would have liked. This has now changed due to the increased level of responsibility and accountability the Traka system brings."



With the Traka cabinet accessed by Company ID card, it is configured as 'iFob per person'. This means that each driver has his/her own personal 'access profile' written from the controlling Traka32 software to the metal iFob at the time of taking it from the Traka cabinet. The benefit here is that each driver can move from truck to truck without having to return to the Traka cabinet - the iFob simply becomes the intelligent key which inserts into a receptor socket wired to a Data Logger (sometimes referred to as Immobilisor) which is integrated to the truck's ignition circuit.

The iFob is taken by the driver from truck to truck and thus affords the driver access to any vehicle for which they have authorised permission. And, should a driver take an iFob off-site, any other qualified driver can immediately operate that truck using his/her own unique iFob. "It's an efficient and simple system that gives total access control."



More than this, the truck is also fitted with an acceptance button, again integrated with the receptor socket and Data Logger. This means that pre-operational acceptance testing must be completed, acknowledged and recorded for every truck, on an individual driver-by-driver basis before it can be used. This information is downloaded upon return of the iFob to the cabinet and stored centrally in the database – it is available to managers by way of a quick report, along with other activity reports to identify who used what resource and when, and if there was damage or faults reported on the truck.

Being an industrial site, it's unrealistic to expect that there won't be any incidents; occasional collisions do happen, but drivers are certainly more careful, especially since Shock Sensors have been introduced. Connected to the Data Logger, the additional Shock Sensor is calibrated to cut-out the truck's motor following an impact above a certain G-Force. Should an impact occur, the driver is obliged to report the incident, complete an incident report and have an interview with a supervisor to discuss the circumstances. The evidence given by the driver can be verified against the data automatically downloaded from the Shock Sensor via the iFob to the Traka cabinet. Initially a minority of drivers were somewhat unhappy as they felt that the new system was going to be an imposition on their normal way of working. But, having experienced the Traka system and the benefits it can bring, there is a high level of acceptance. There is no more frustration over missing keys and trucks are in much better shape. There are fewer trucks out of commission awaiting spares or repair. One other positive; because the truck cuts out on the spot it is easy to identify the exact location of any collision, and if the facilities or housekeeping standards need to be improved, such as widening an aisle or relocating a kanban square.

More Key Control

Impressed by the solutions implemented so far, the factory is now working with Traka to help manage key control throughout the building. Previously, keys held by security in a front office were signed in and out, with only paper records being maintained. Keys to these areas or rooms held important materials such as:-

- PPE Stores
- Document Stores
- Roof access
- Pump houses
- Chemical stores
- Electrical switch cabinets

Now access to these keys is controlled through a Traka L Series (180 key) system. There is enforced restriction on accessing keys based on a 'needs only' or 'trained/competency' basis. With full audit capability, both managers agree, "...this has brought about a culture change, ensuring that all staff are more accountable and responsible in their actions and daily work."

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