

# Plant Tracking System

Material Traceability and Quality Control at  
MÜLHEIM PIPECOATINGS GmbH





## Pipes at a glance

Offshore pipelines often lie at depths of up to 2,000 metres under the sea. This logistical feat is only efficiently possible if all pipes are laid properly and they can permanently fulfil all the physical requirements. For this reason, MÜLHEIM PIPECOATINGS GmbH (MPC) – part of the EUROPIPE Group – has introduced a new plant tracking system from iTAC Software AG, which knows the entire life course of a pipe down to the smallest detail. This enables the increasingly demanding quality requirements laid down in customer specifications to be met to the full. The solution is being deployed on the Nord Stream 2 current pipeline project, which transports natural gas from Russia to Europe through the Baltic Sea.

The EUROPIPE Group, as a global player, produces straight and spiral welded pipes of virtually any desired dimensions. Two other manufacturing and coating pipe works located in the United States (in Panama City, Florida, and Mobile, Alabama) belong to this network. MPC is the technical competence centre for the coating process within the EUROPIPE Group. Continuing development of the manufacturing processes and systems, as well as constant optimisation of the coating materials, are centrally managed by the experts. With an annual capacity of up to 4.5 million square metres of interior and exterior coatings, MPC operates the most productive coating facility in the big pipe industry. To enable it to consolidate this

strong market position, MPC chose a plant tracking system based on the iTAC.MES.Suite from iTAC Software AG during the course of an invitation to tender. „Where pipe coatings are concerned, the specifications are becoming increasingly more demanding, and consequently it is increasingly crucial to assure a constant product quality,” explains Rainer Grabowski, Plant Manager at MPC. „High product quality standards and seamless quality control measures preclude the risk of exorbitant consequential damages. Any faults must be found during the production or testing process. The plant tracking system ensures that this is the case. Usually, no more than 0.5 percent of the pipes need to be re-coated,” adds Rainer Grabowski.



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Rainer Grabowski, Plant Manager MPC

## A gigantic dimension for pipe tracking

The system developed by iTAC is a tracking and tracing solution, which was put into operation at the beginning of the Nord Stream 2 project in October 2016, and is due to gradually replace the previous system, which had reached the limits of its capabilities on account of the increasing demands. „The first few kilometres of piping for the Nord Stream 2 project have already been realised with the new system, and significantly fewer start-up problems were encountered than had been anticipated, which is a huge success for the introduction of such a complex IT system,“ describes Rainer Grabowski. Later, it is intended that the solution will be used for all other projects as well. The solution takes over full control of the production and the subsequent loading process. It records the entire life cycle of a pipe up to this point, and it is informed about its release status and the storage locations, as well as the transportation by lorry from EUROPIPE to MPC. The employees can access all the pipe data whenever required, for example on a PDA handheld device.



„The plant tracking solution goes far beyond a standard system. Its particular strength lies in the numerous customisations and programming changes that have been undertaken on the basis of a business rule engine integrated in the iTAC.MES.Suite. The system must be capable of handling several specific scenarios,“ explains Dirk Klingbeil, Managing Director of MPC. He adds: „In some instances, the pipes go back and forth between MPC and EUROPIPE several times, and then may have to be shortened and taken to the bending plant. This is just one of the everyday, but certainly complex requirements.“

For this reason, different interfaces have been programmed in close collaboration between iTAC and MPC: for shipping, transportation/rail, for proprietary shopfloor-related developments at MPC, as well as a BI (business intelligence) portal. The iTAC.BI.Portal facilitates both daily and final documentation for the customer. To assure consistent transparency and process reliability, EUROPIPE is always kept informed about the status of the pipes as well. The documentation module was docked onto the system using MPC's own programming.

# The transparent pipe: fully documented and analysed

The process is organised as follows: The MPC drivers receive initial information about the pipe on their PDA handheld device and record additional data. Among other things, they are told whether the pipe is to be stored or transported directly to the coating plant. With the new interface to EUROPIPE, the data is transferred in a matter of seconds in a process which took about 10 minutes to complete with the previous solution. When the pipe arrives at MPC, the system then documents all the other processes – for the most part automatically.

In the event of negative feedback from the system about a pipe exceeding or falling below limit thresholds during the testing process (for

example an insufficient coating thickness), the pipe is immediately blocked for further fabrication steps depending on the respective test criterion. This is effected by the integrated business rule engine in combination with quality control codes. In the case of cosmetic shortcomings, the pipe is only discharged at the end of the process.

With an additional mobile application, the handheld devices are used to verify, perform and document the loading of the pipes onto physical means of transport (railway wagons or lorries). This makes it possible to guarantee that only definitively released pipes are loaded on the basis of pre-defined loading rules.





The result: The plant tracking system controls the pipe flow along the entire coating process, and on through to the loading onto the railway wagons and the assembly of the trains. It is continuously adapted by MPC employees to handle special manufacturing situations and meet increasing demands on the pipeline

projects. The comprehensive quality and logistics control system, which directly shows any deviations by means of automated data analysis, guarantees complete transparency, a high degree of reliability, and perfectly coordinated logistic processes across the entire process chain.

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