



Excellence in Chemical and Polymer Logistics.
Coperion Logistics Solutions powered by Körber Supply Chain Software.

➤ Strong partners, strong solutions. Holistic expertise along the whole polymer process chain.

A new wave of vertical integration in petrochemicals has become necessary to add value in feedstock-advantaged areas resulting in the planning and construction of new mega commodity polymer production plants. Further vertical integration into polymer compounding and processing has already started and will continue, as the drive to add more value persists.

The new commodity production plants have outgrown conventional manual or simple spreadsheet management of product flows and warehousing operations. New plants have to be designed to serve all corners of the globe with continually changing market opportunities and, consequently, dispatch modes.

Evermore demanding quality responsibility requirements not only in the commodity chemical and polymer but especially in the compounded polymers market require full integration of complex processing control systems with product tracing, quality and logistics management software.

Continuous and accurate interfacing between the affiliates production, product handling and logistics operations and their parent company ERP network is essential to support the global chemical and polymer marketing efforts, to take advantage of production synergies and to manage increasing transit inventories.

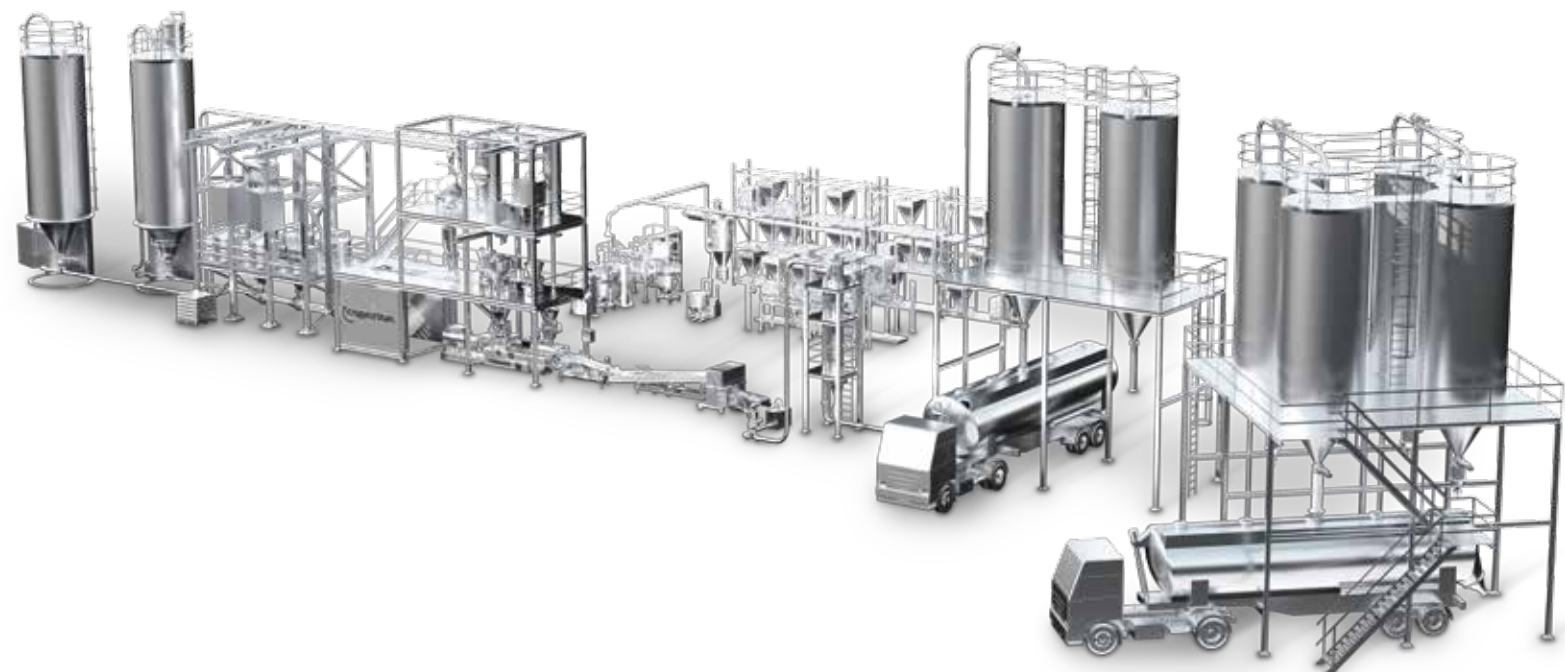
PROVIDING COMPREHENSIVE SERVICE ALONG THE WHOLE CHEMICAL AND POLYMER PROCESS CHAIN.

Coperion and Körber have formed a partnership to provide a comprehensive service along the whole chemical and polymer process chain from initial business plan and plant conception to full plant implementation and chemical/polymer tracing, quality management, logistics and distribution intelligence. In recognition of these new chemical and polymer market challenges, Coperion and Körber (utilising Körbers **K.Motion ISL** (integrated Site Logistics) software suite) provide innovative logistics solutions for new plant design, network integration and also for retrofit modernization and improved network integration of existing plants including, but not limited to:

➤ Polymer production plant logistic concept development up to full FEED (Front End Engineering Design) utilizing cutting-

edge plant simulation software

- Compounding plant concept development, system design, FEED to lump sum turnkey supply
- Highly specialized logistics management systems for complex material flow processes from production batch allocation through static and dynamic inventory management to end user receipt
- Logistics management for chemical material flow processes and transportation
- Design for full integration of polymer production and material flow processes for quality and batch tracing accountability and inventory management
- Continuous production planning software fully integrated into the logistics management suite



»» Coperion Logistics Solutions powered by K.Motion ISL. Solving the challenges you face in your daily business.

In today's world, logistics processes are a competitive differentiator. Comprehensive logistics processes management is crucial to optimizing revenue, improve resource utilization and service the end customer efficiently.

Coperion & Körber provide a comprehensive approach to chemical and polymer plant projects along the whole process chain from production to end customer. The changing market and globalization of the chemical and polymer business creates new challenges. For both polymer compounding and process plants and polyolefin production plants, downstream integra-

tion of polymer production is required for additional value. The same is valid for chemical plants. Logistics systems are needed to manage complex material flow processes. Plant flexibility is required to enable immediate response to dynamic market demands. The highest levels of reliability and cost efficiency are mandatory. The importance of product traceability and integrity from the process plant to the end user is growing.

Current logistics operations need to be adapted for complex process plants. And last, but not least, sustainable logistics concepts are needed.

The core of the **K.Motion ISL** solution is the warehouse management processes for the storage and handling of products. The operational processes covered in the **K.Motion ISL** functional modules include:

- > Bagging and palletizing
- > Bulk product handling and silo management
- > Fluid product and packaging handling
- > Yard management
- > On-site and off-site inventory control
- > Storage and allocation controls
- > Picking & packing
- > Material flow control
- > Lot / batch tracking
- > Outbound delivery and transports
- > Product flow control
- > Logistics service provider integration
- > Automated warehouse solutions



➤➤ Core Functions K.Motion ISL. Multilayered and multifunctional.

TRANSPORT, RAIL AND CONTAINER MANAGEMENT

Product transport both in and outside the production facilities is an integral part of the process for the chemical and polymer industry. To move the products to the market, the efficient management of transports and the container and railcar yards play a decisive role.

In **K.Motion ISL**, the processes are managed with the transport, container and railcar management modules.

Functions covered include:

- › Dispatching, loading and transport planning
- › Transport control on facility
- › Gate entry/exit management
- › Routing to/from silos and storage locations
- › Weighbridge process control
- › Container and railcar availability & demurrage control management
- › External LSP container and railcar park management
- › Reach stacking and container storage management
- › Rail yard management and shunting - you gain efficiency through transparency and global control of the transport and container management

BAGGING

In the chemical and polymer industry, the bagging of products from silos and bagging machines plays a fundamental role in the storage and transportation of products. With a module specifically designed for this process, **K.Motion ISL** provides the following functions:

- › Bagging management
- › Conveyor system controls
- › Bag and pallet label generation
- › Bag serialization
- › Control room functions
- › Process disruption monitoring
- › Material flow simulation

INTEGRATION AND CONNECTIVITY

The complex processes in the supply chain today require that systems be connected. **K.Motion ISL** provides an integration module that connects to a variety of higher order and subsystems.

- › ERP systems, SAP connectivity
- › PC network and printers
- › Programmable Logic Controller (PLCs)

- › Distributed Control Systems (DCSs)
- › Silo control
- › Weighing scales
- › Forklift and reach stacker control system
- › Scanner and MDT equipment
- › Carrier collaboration

K.Motion ISL provides integration to optimize your processes on time and in real time.

SUPPORT SOLUTIONS

- › 24x7 support
- › Remote & on-site support
- › Database monitoring and optimization

- › Online ticket system
- › Application, network and mobile devices support

PRODUCTION AND COMPOUNDING PLANNING

The production of different products and grades/lots is at the heart of the chemical and polymer plants. Through extrusion and blending systems, polymer products are produced. The management and monitoring of such processes are covered in the **K.Motion ISL** module for production planning.

These processes include:

- › Production supply
- › Raw material management
- › Production order management

- › Production control (MES)
- › Recipe management
- › Lot / batch record tracking
- › Material balancing
- › Output to warehouses and silos
- › Production forecast
- › Sample taking and storage

Through efficient and flexible planning processes, **K.Motion ISL** gives you full transparency and control over the products being produced and the information required for downstream processing.



➤ All-in-One. Complete process value chain including customized solutions, technical equipment and modern technology.

CUSTOM SOLUTIONS

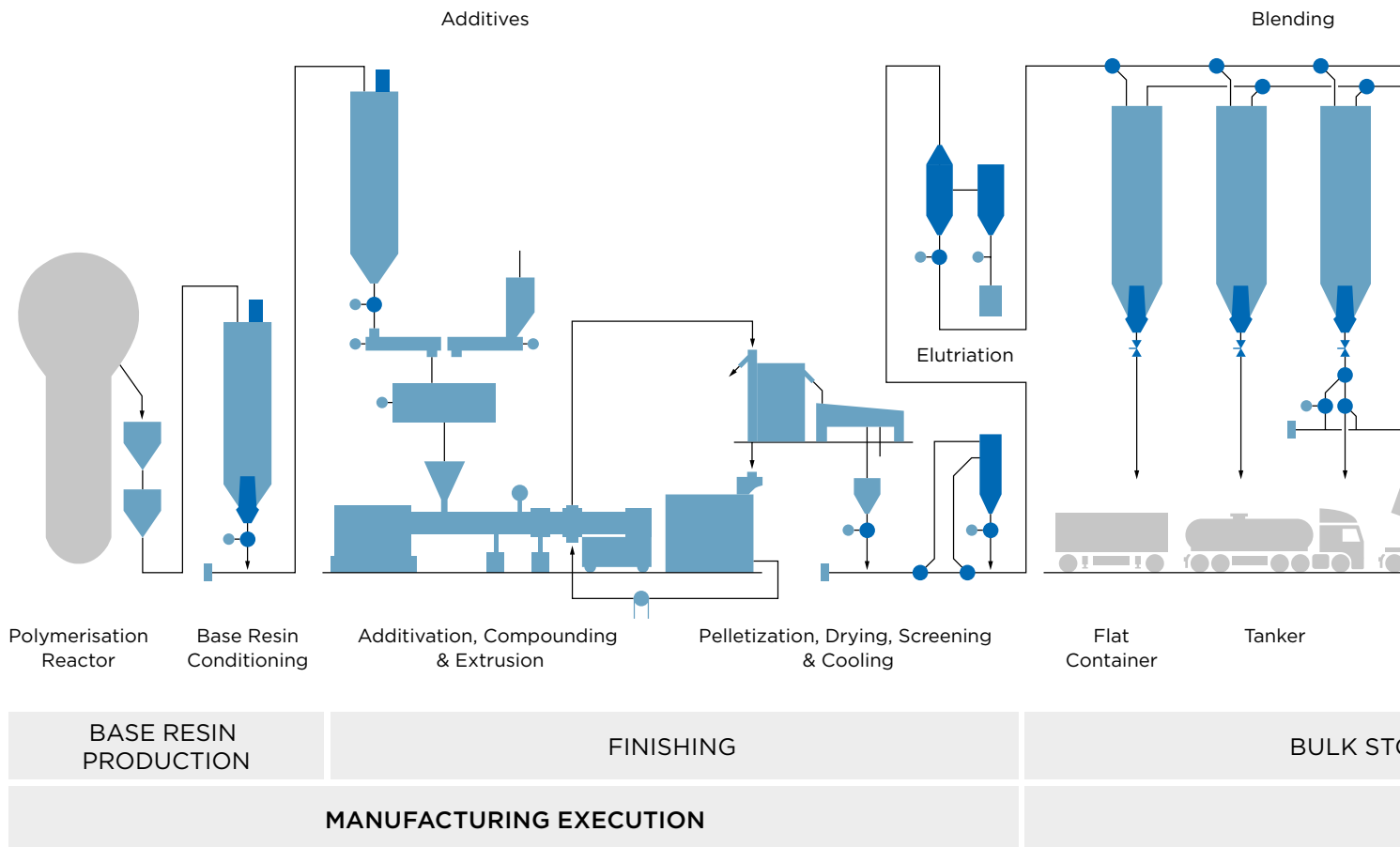
Based on the core **K.Motion ISL** product, individual configurations and customizing can be done to support your unique needs.

NETWORKS AND HARDWARE

Körber and Coperion provide the IT networks and hardware required for the **K.Motion ISL** solution. In addition, the mobile devices (MDT, forklift terminals, scanners and RFID systems) can be implemented. High performance and failover safe database clusters are used to ensure 365 days, 24x7 system availability. A complete **K.Motion ISL** solution from one supplier.

MODERN TECHNOLOGY

Using state-of-the-art Java technology with Oracle databases secures your investment for a future-proof solution. High performance processes and the latest network communication technology ensure a robust, secure and reliable solution.



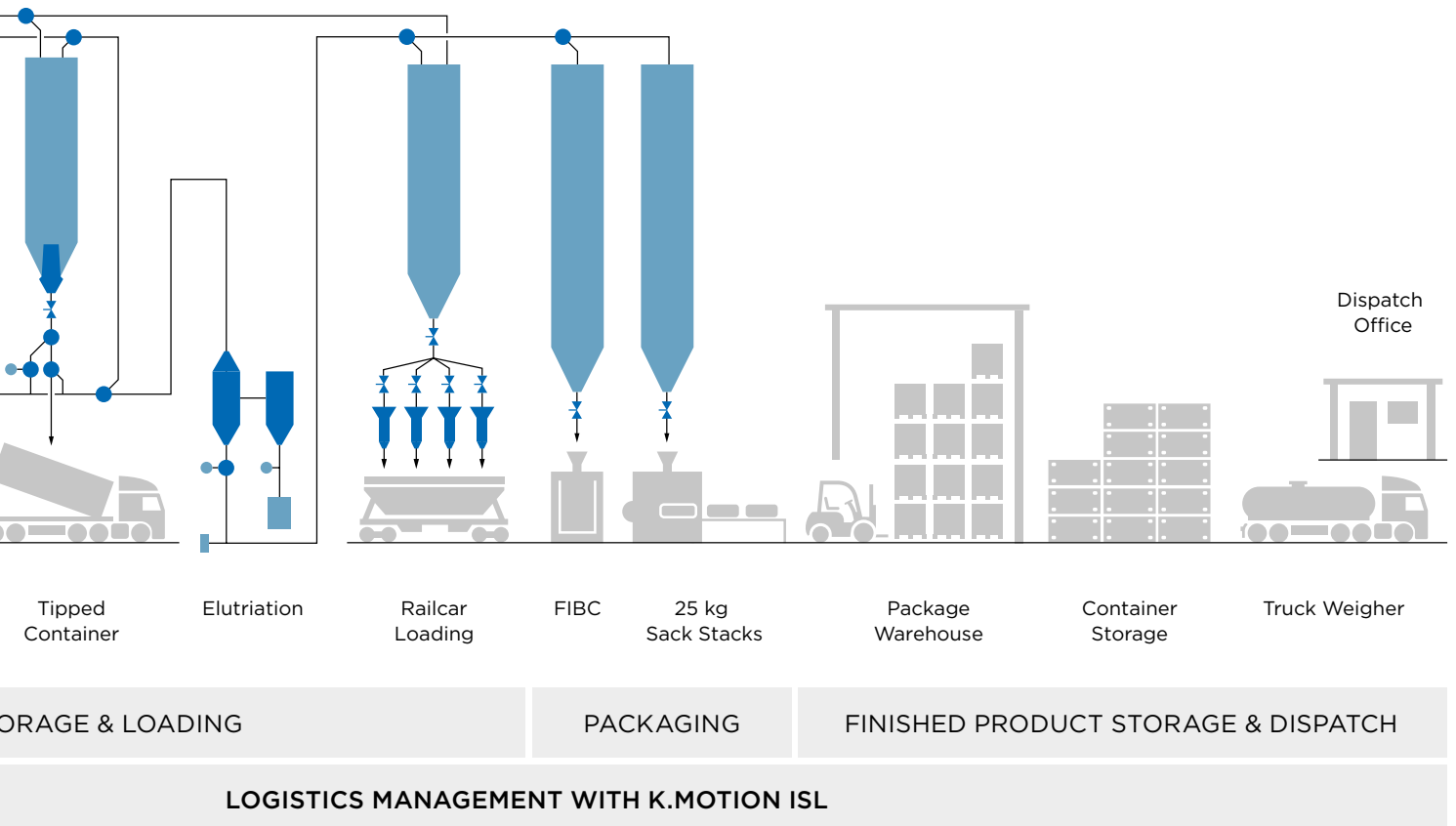
➤➤ Perfect combination of capabilities. Unrivalled comprehensive mechanical, process, engineering, IT and software know-how.

➤➤ COPERION

- > Polymer production plant reactor to dispatch business process know-how
- > Compounding industry logistics and production business process know-how
- > Process and logistics concept development
- > Front End Engineering Design (FEED) with simulation of logistics and process operations
- > Project management from process definition to plant start-up and software go-live
- > Polymer materials handling and extrusion systems OEM
- > Process control based on PLC, or control logics for plant DCS
- > ISL hardware and network supply

➤➤ KÖRBER SUPPLY CHAIN SOFTWARE

- > IT solutions with **K.Motion ISL** and SAP based solutions
- > Container, truck and forklift yard traffic management
- > Online real-time interface architecture **K.Motion ISL** with DCS and ERP (e.g. SAP)
- > IT technology skills, e.g. high availability back-end systems (LAN, WLAN, ISL server)
- > Mobile and stationary peripherals (FLT and truck mobile terminals, PCs, scanners, printers)
- > Commissioning, operator training, online support



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