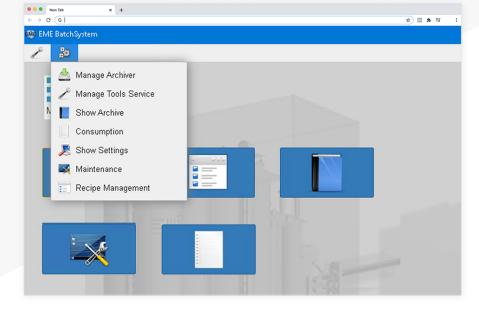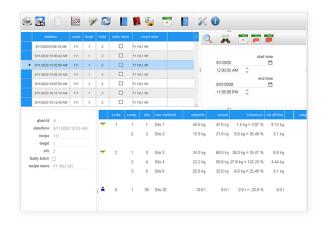# EME GmbH

## Smooth Web-enabling for SCADA and OPC-based Systems with Wisej.NET



## EME GmbH Realizes Web-based Batch System for Glass Industry with Wisej.NET.

Germany-based EME GmbH is a supplier of batch preparation and batch charging technologies for the glass industry. The company was founded 100 years ago and is today one of the leading suppliers for customers around the world. Glass manufacturers count on the reliability and efficiency of the plants and technologies developed by EME.
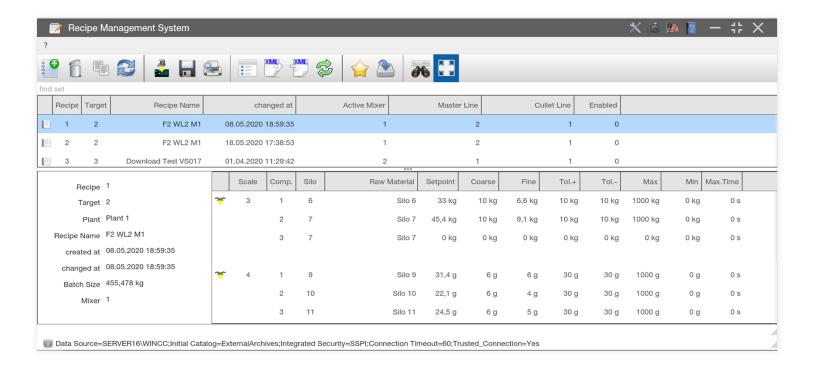
## First web-based batch system for the glass industry

Traditionally, Windows-based computers were needed to manage and control the glass production process. EME's software development department designs and implements modules to manage the plants and machinery. Batch handling, recipe management and predictive maintenance are core features supported by the application and used locally at client sites.

Machine to machine communication and management is realized with the SCADA protocol. OPC servers are being used to connect devices, plants, and software modules, in order to implement a failure-proof system management architecture. OPC is an acronym for "Open Platform Communication", originally referred to as "OLE for Process Control".

Roger Knüttel, in charge of the Control Development Department at EME, summarizes the core requirements:

"The new EME BatchSystem uses the advantages of browser-based software, which can be used without local installation on any type of hardware solution such as tablets, smartphones, desktop computers (Windows and Linux) and with any operating system while taking advantage of desktop-based software like direct access to the control hardware and a high performance database."

### Recipe Management System

?

find set

| Recipe | Target | Recipe Name | changed at | Active Mixer | Master Line | Cullet Line | Enabled | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | F2 WL2 M1 | 08.05.2020 18:59:35 | 1 | 2 | 1 | 0 | |
| 2 | 2 | F2 WL2 M1 | 18.05.2020 17:38:53 | 1 | 2 | 1 | 0 | |
| 3 | 3 | Download Test VS017 | 01.04.2020 11:29:42 | 2 | 1 | 1 | 0 | |

| | |
|---|---|
| Recipe | 1 |
| Target | 2 |
| Plant | Plant 1 |
| Recipe Name | F2 WL2 M1 |
| created at | 08.05.2020 18:59:35 |
| changed at | 08.05.2020 18:59:35 |
| Batch Size | 455,478 kg |
| Mixer | 1 |

| Scale | Comp. | Silo | Raw Material | Setpoint | Coarse | Fine | Tol.+ | Tol.- | Max | Min | Max.Time |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | 6 | Silo 6 | 33 kg | 10 kg | 6,6 kg | 10 kg | 10 kg | 1000 kg | 0 kg | 0 s |
| | 2 | 7 | Silo 7 | 45,4 kg | 10 kg | 9,1 kg | 10 kg | 10 kg | 1000 kg | 0 kg | 0 s |
| | 3 | 7 | Silo 7 | 0 kg | 0 kg | 0 kg | 0 kg | 0 kg | 0 kg | 0 kg | 0 s |
| 4 | 1 | 9 | Silo 9 | 31,4 g | 6 g | 6 g | 30 g | 30 g | 1000 g | 0 g | 0 s |
| | 2 | 10 | Silo 10 | 22,1 g | 6 g | 4 g | 30 g | 30 g | 1000 g | 0 g | 0 s |
| | 3 | 11 | Silo 11 | 24,5 g | 6 g | 5 g | 30 g | 30 g | 1000 g | 0 g | 0 s |

Data Source=SERVER16\WINCC;Initial Catalog=ExternalArchives;Integrated Security=SSPI;Connection Timeout=60;Trusted_Connection=Yes

# Moving to the web with business requirements in mind

With a long track record and hundreds of plants and systems installed around the globe, a simple rewrite of the entire EME application logic stack seemed impossible. Based on a first contact at a German developer conference BASTA for .NET development, the development team at EME started to explore Wisej.NET as a fast and reliable migration path to move to the web.

The makers of Wisej.NET, Ice Tea Group, had published a migration guide on how to bring Windows Forms based applications to the web. With this documentation at hand and a little advice and support, Roger Knüttel and his team managed to tackle the migration. In a matter of months, all existing .NET based applications were up and running in the browser and first plants equipped with the new software stack. Mr. Knüttel explains: "Thanks to Wisej.NET, we were able to deliver the first web-based application suite for batch management in the glass industry. Our customers and maintenance staff appreciate the benefits: Access to our systems is now possible at any time and from any place in the world while considering and maintaining a high level of security – just using an internet connection."
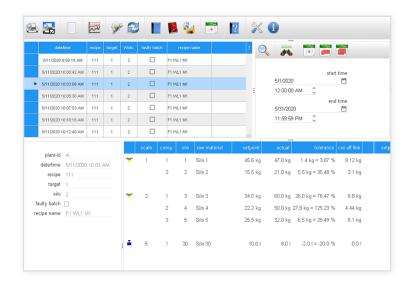
With a long track record of Windows-based software modules, EME was looking for a smooth transition to move their application suite to a fully web-based solution. The goal was to keep existing features and maturity of the software while reaching platform and device independence for those that operate EME equipment at the glass manufacturing sites. Roger Knüttel continues:

"Thanks to Wisej.NET, the new EME BatchSystem uses a modern web framework as a base of the development, which provides us with the flexibility to include any upcoming technology. We were able to take over most of the existing functionality and proven algorithms, combining the benefits of a new web-based solution with the reliability and stability of our existing code base."

## Integrating Wisej.NET with SCADA, OPC, SAP and other systems

The suite of applications developed by EME supports:

- Batch archiving and consumption analysis (MS SQL Server)

- Diagnosis and analysis of dosing accuracies by means of curve, standard deviation, etc.

- Powerful recipe management

- Preventive and predictive maintenance

- Standardized maintenance objectives based on EME maintenance guidelines

- Fully flexible adaption of these settings to meet specific customer needs

- Universal data Interfaces -> XML, XLS, CSV, PDF, EXCEL, RTF, MS SQL

- ERP Interfaces (SAP, etc.)

- Direct integration with the EME SCADA System

- OPC Server as interface for the process communication

- Interfacing with third party software, such as batch calculation programs

- Automatic backup of all system parameters, setpoints, settings, etc.

- Sophisticated data redundancy concepts

- Simple changes to the styling of all forms and dialogs

- Multi-lingual user interface

- Responsive design, also supporting Smartphones and Tablets

## Results Achieved

- Successful web migration of a SCADA-based glass production systems in a matter of months

- Preventive and predictive maintenance concepts powered by Wisej.NET

- OPC Server as interface for the process communication

- UI/UX improvements and cross-browser/cross-device support

- Easy upgrade approach for existing software installations

- Integration with SAP and other ERP systems along with additional software interfaces

- Sophisticated redundancy with fallback strategy

- Flat learning curve of EME's development team

info@wisej.com | wisej.com
+1-202-449-3778 | +1-800-440-7049

**Preventive Maintenance**

Edit   File

| drive name | BATCH/BP_BELT_342 | active | | Runtime [s] | 0 days, 0 hours, 0 minutes , 0 seconds |
| type | BeltConveyor | active server | SERVER15 | | |

| maint request | maintenance work | setpoint | actual value | last maintenance | user | Count Complete Time |
|---|---|---|---|---|---|---|
| | all bolt connections correct | 365 days, 0 hours | 24 days, 16 hours, 26 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Bearing main gearbox,lubrication | 4 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |
| | Cable-operated emergency switch | 180 days, 0 hours | 7 days, 20 hours, 29 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Chain drive (Lubrication) | 90 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |
| | Coupling | 365 days, 0 hours | 24 days, 16 hours, 26 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Drums | 90 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |
| | Electric connections, all cables | 365 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Guide cover | 30 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |
| | Idlers | 180 days, 0 hours | 7 days, 20 hours, 29 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Limit switch and position 1o | 180 days, 0 hours | 4 days, 0 hours, 41 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Roller bearings (Cleaning) | 730 days, 0 hours | 24 days, 16 hours, 26 minutes | 4/16/2020 5:49 PM | emeeme | ☑ |
| | Roller bearings (Lubrication) | 90 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |
| | Roller bearings (Noise) | 30 days, 0 hours | 0 days, 0 hours, 0 minutes | 4/16/2020 5:49 PM | emeeme | ☐ |

Tree list (left panel):
- BATCH/BP_BELT_218
- BATCH/BP_BELT_219
- BATCH/BP_BELT_322R
- BATCH/BP_BELT_342
- BATCH/BP_BELT_342R
- BATCH/BP_BELT_349
- BATCH/BP_BELT_349R
- BATCH/BP_BELT_367
- BATCH/BP_BELT_367R
- BATCH/BP_BELT_377
- BATCH/BP_BELT_377R
- BATCH/BP_BELT_384
- BATCH/BP_BELT_384R
- BATCH/BP_BELT_388
- BATCH/BP_BELT_388R
- BATCH/BP_BELT_395
- BATCH/BP_BELT_SCALE_09
- BATCH/BP_BINACT_121_SILO_04
- BATCH/BP_BINACT_148_SILO_06
- BATCH/BP_BINACT_150_SILO_07
- BATCH/BP_BINACT_152_SILO_08
- BATCH/BP_BINACT_183_SILO_09
- BATCH/BP_BINACT_183_SILO_9_1
- BATCH/BP_BINACT_185_SILO_10

# About EME GmbH

For almost 100 years EME GmbH has been a leading supplier of batch preparation plants, cullet handling equipment and batch charging technology for the glass industry. Glass manufacturers in the container, flat and special glass industry depend on the reliability and efficiency of EME's machines and systems.

EME belongs to the German SORG Group, providing tailormade solutions for the glass manufacturing process from delivery of the raw materials through to the start of the forming process.

https://www.eme.de/

# About Ice Tea Group

Ice Tea Group LLC, located in Washington DC, is a worldwide specialist for enterprise application modernization and business web frameworks.

We help developers and organizations stay competitive. Our mission is to strengthen and increase the value of enterprise-scale software assets by providing modernization paths throughout technology changes.

Since 1998, our services and frameworks have been used by more than 600 companies, in 4,800+ applications, over 50 countries. Some of our clients are: Fujitsu, Lidl, Goodyear, Xerox, Skanska, Volvo, Merck, GE Healthcare, IFS, Air New Zealand, CBS, SAGE, Ericsson, Siemens, ASFINAG, Markel, Ameriprise, Europ Assistance.

https://iceteagroup.com/