

AlisQI Customer Day

Malcolm McLean

QC/QA Manager

edilon)(sedra

Always a step ahead in Rail Systems...



Our company

edilon)(sedra is a global track system supplier with a unique range of rail fastening and vibration isolation systems for all kinds of modern rail transport.

We engineer, manufacture and supply **ballastless track systems** for:

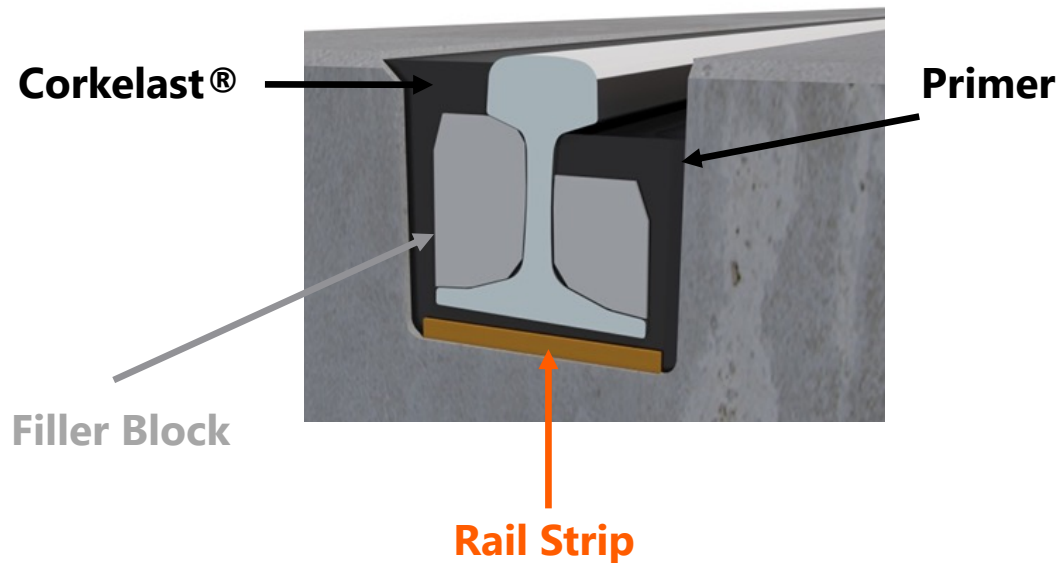
- Light Rail
- Metro
- Heavy Rail
- Industry

Main Systems

- Our ballastless track systems are a well-known standard in the international rail market since the early 1970's
- Our systems stand for maximum electrical insulation, optimal noise & vibration control, short installation times and a minimum of maintenance required
- We are contributing to a more sustainable rail infra future

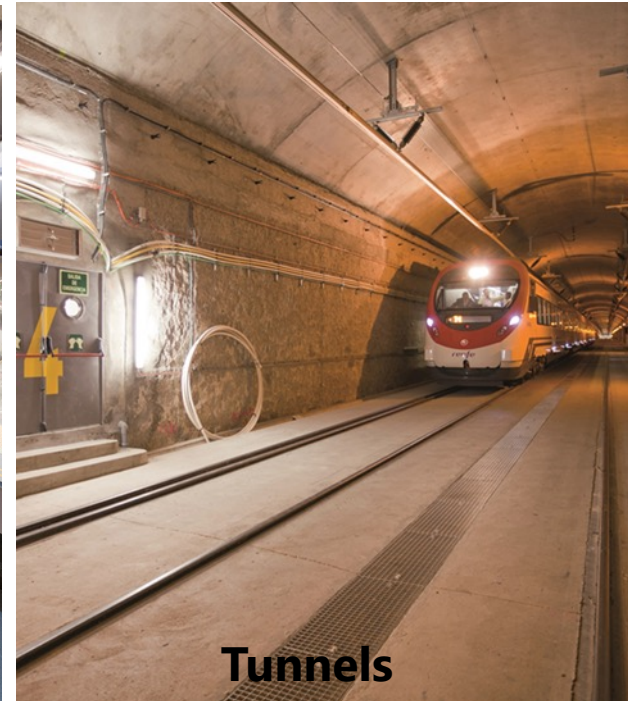
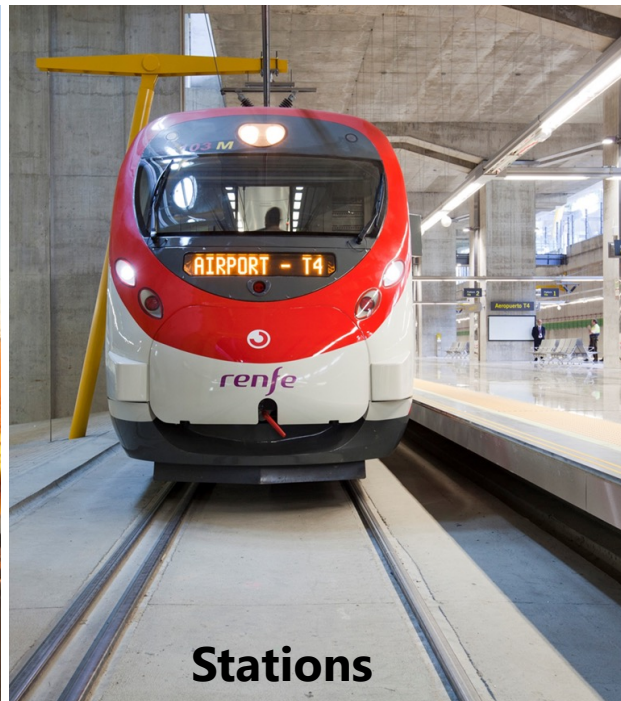
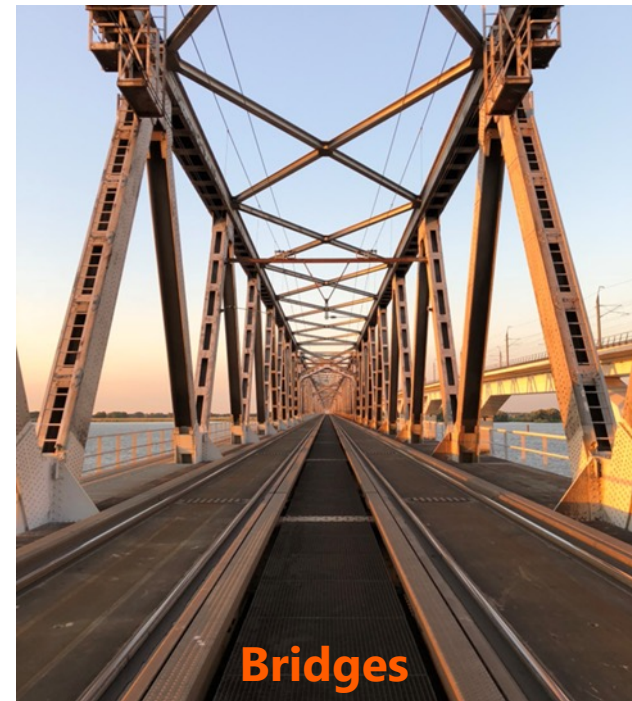
1. Embedded Rail System (ERS)

- The rail is attached without the use of traditional mechanical rail fastenings
- The rail is instead anchored in a concrete or steel channel/slot by “embedding” it with **Corkelast®** elastomer grout
- Resulting in a very stable, durable and continuous support of the rails and a uniform transfer of forces from the rail to the supporting structure

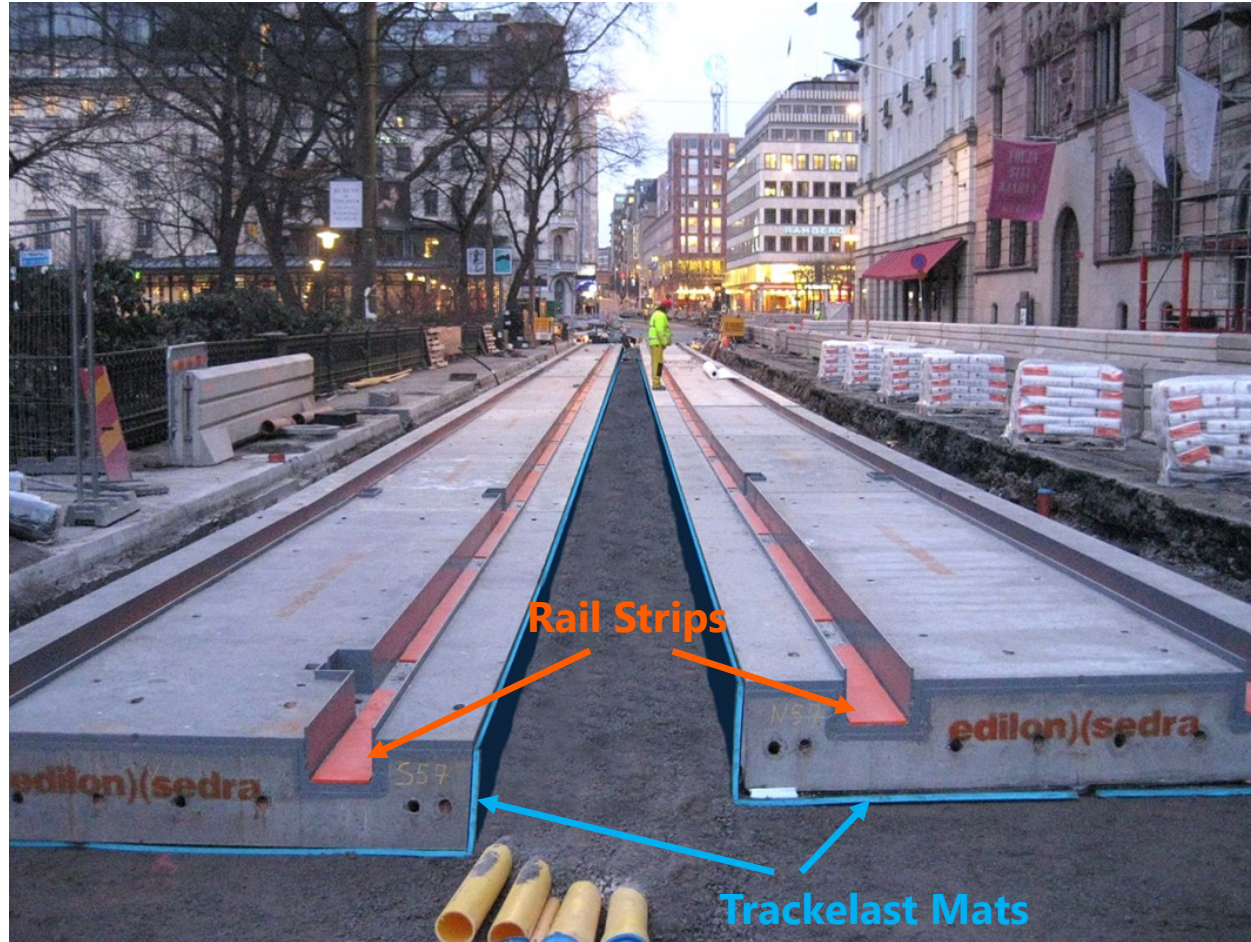


1. Embedded Rail System (ERS)

- Continuous elastic rail and slab support
- Durable and robust - low Life Cycle Costs
- High electrical insulation
- Large reduction in noise pollution.
- Saving on construction height and weight
- Provides a running surface accessible to road traffic / emergency vehicles

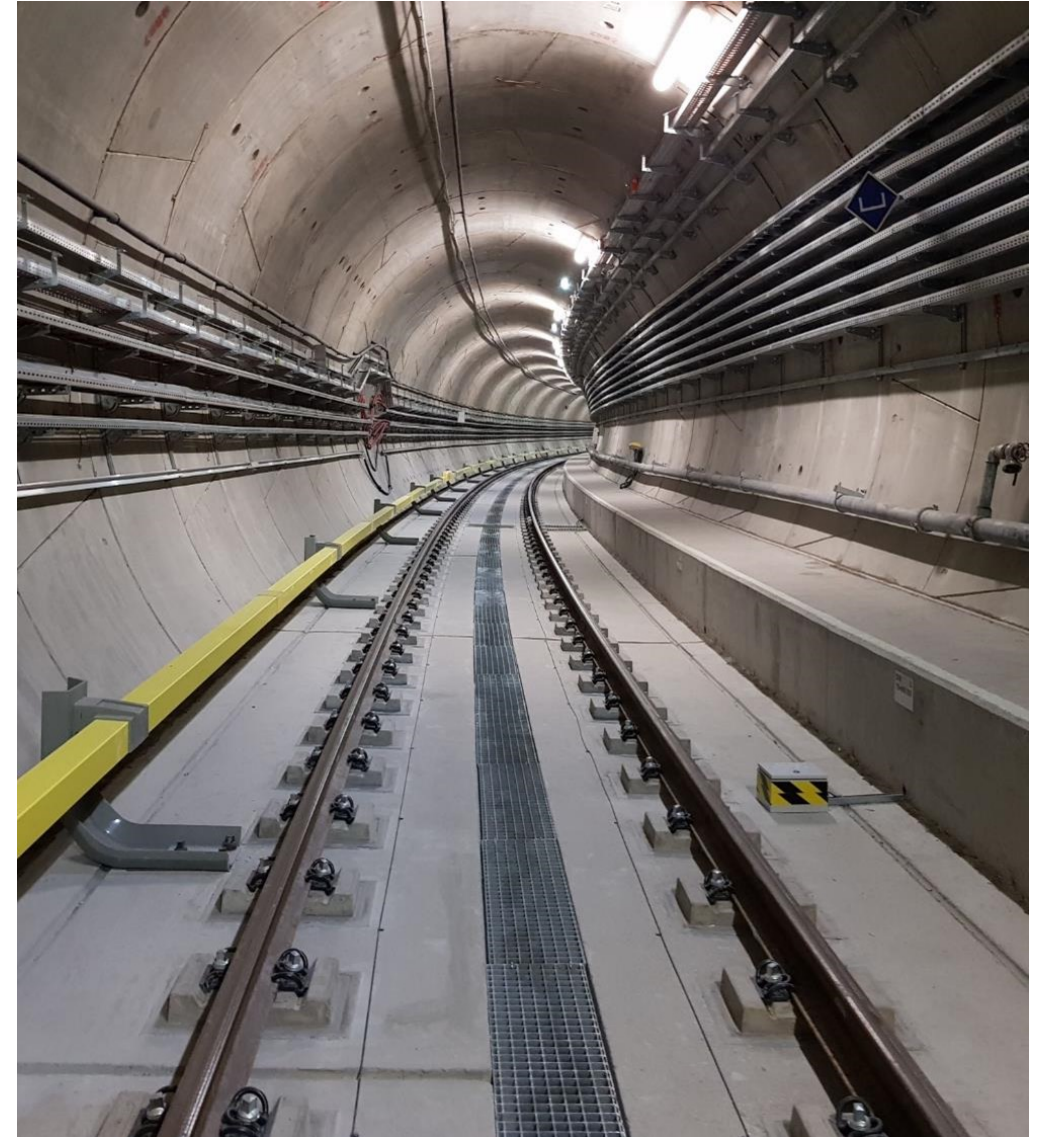
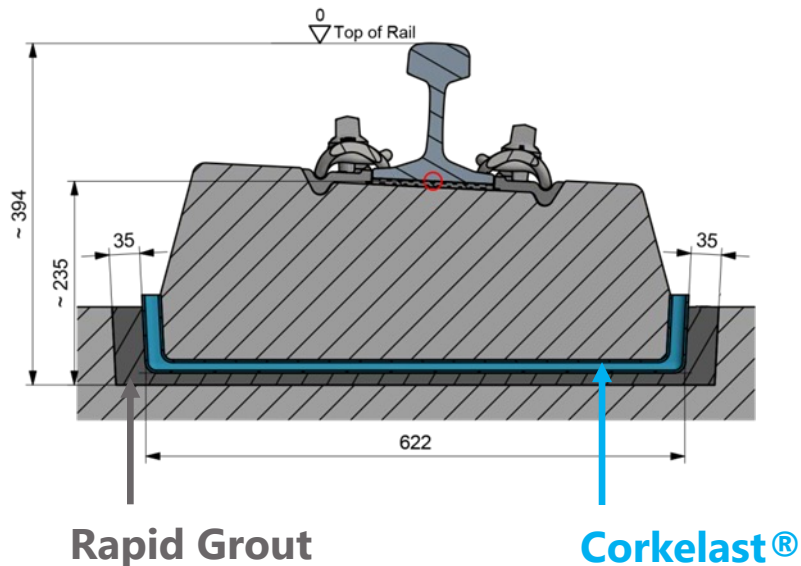


2. Anti-Vibration System (Trackelast®)

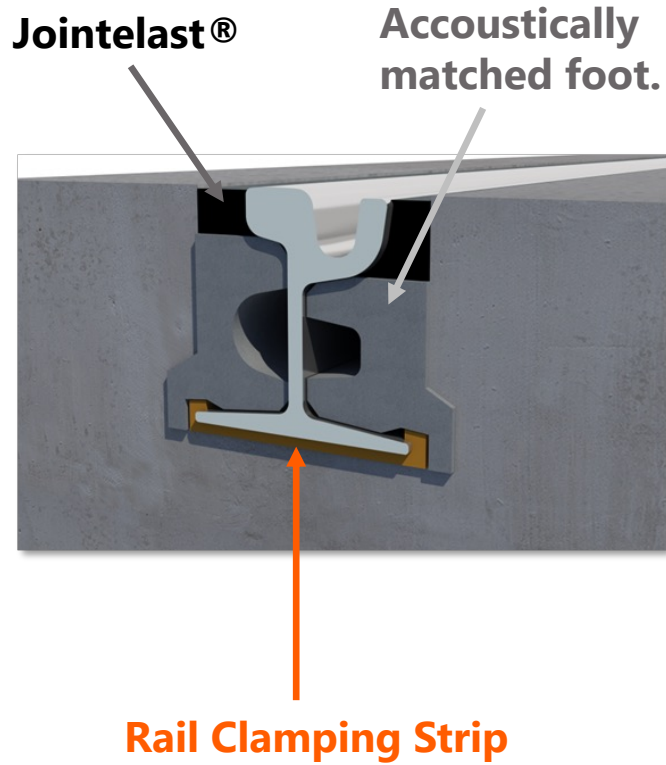


3.Embedded Block System (EBS)

- Concrete block embedded in **Corkelast®** based tray
- For all rail profiles and fastening systems
- For track refurbishment → innovative replacement method for worn-out booted (bi-block) sleepers and half ties



4. Sound Dampening System



QC & AlisQI

1. Organising our QC

QC is organised into 3 Main Categories

1) Chemical Products (VP Articles)

38 QC Forms

Produced in Haarlem until 2019

Corkelasts[®], Jointelasts[®], Primers & Dex 2 Epoxies

2) RPU Foams – Trackelast (VH)

Trackelast Mats, Rail Strips, Rail Clamping Strips, Base Plate Pads,

3) Trade Goods (VH) - Certificate Based QC

Filler Blocks, Wedges, Shims,

In total > 500 QC Forms!

In 2020 we closed Haarlem Production and shifted strategy to using Tolling Manufacturers for production of Chemical Products.....

2. Outsourced Chemical Product



A : Corkelasts

Item	Value
1	100
2	200
3	300
4	400
5	500
6	600
7	700
8	800
9	900
10	1000



B : Primer+Dex

Item	Value
1	100
2	200
3	300
4	400
5	500
6	600
7	700
8	800
9	900
10	1000



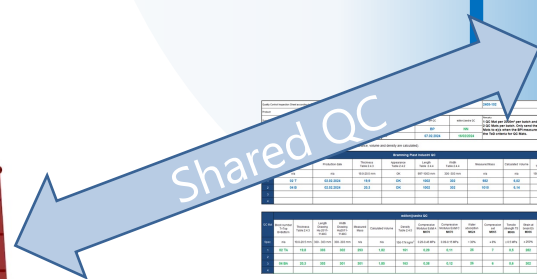
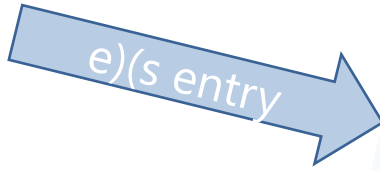
C : All Types

Item	Value
1	100
2	200
3	300
4	400
5	500
6	600
7	700
8	800
9	900
10	1000

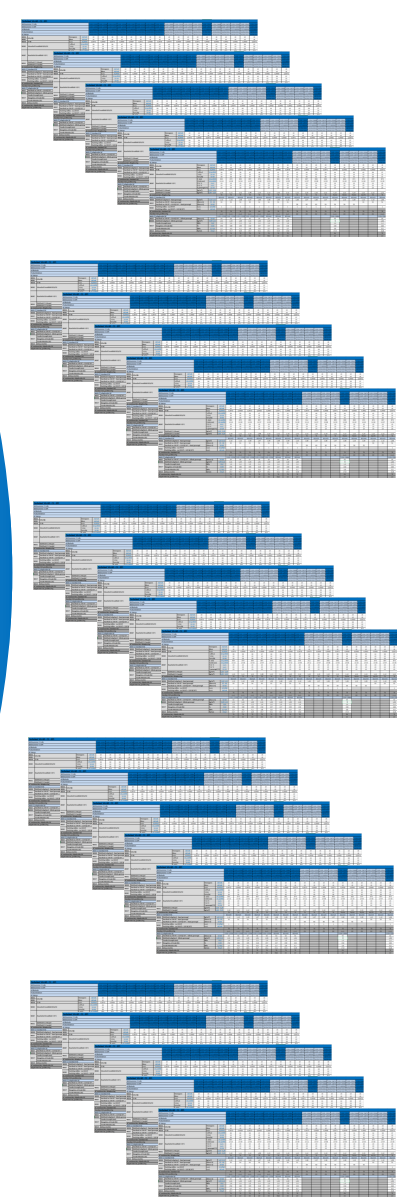
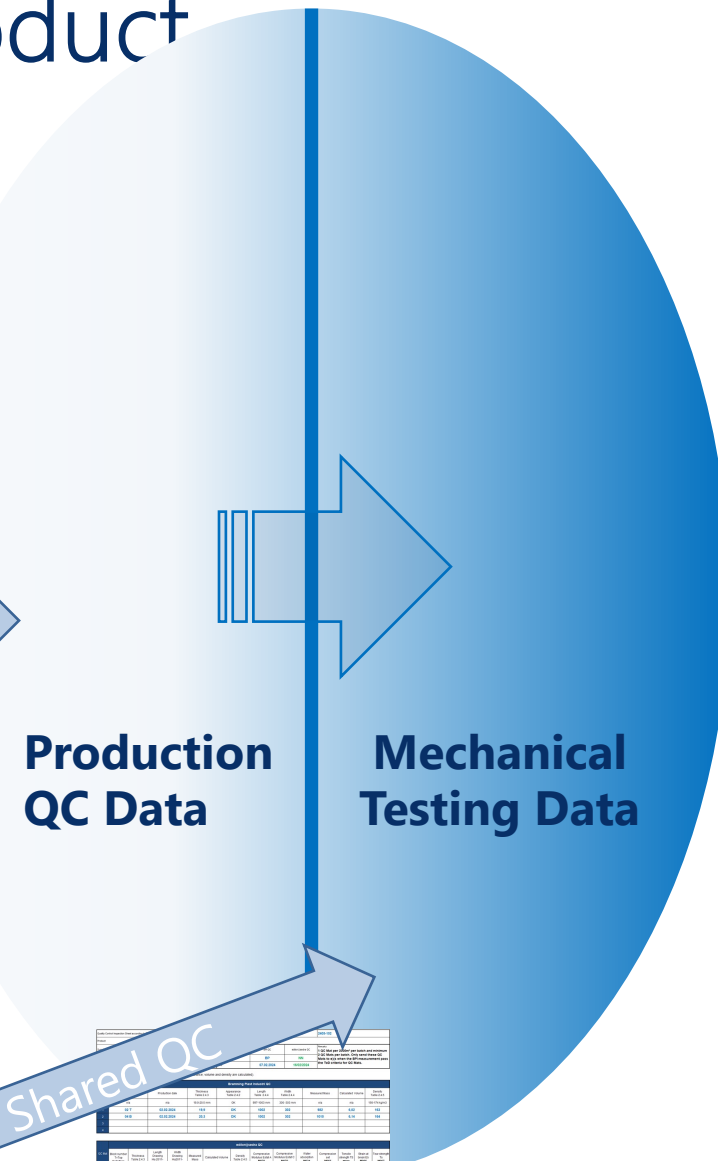


D : Dex

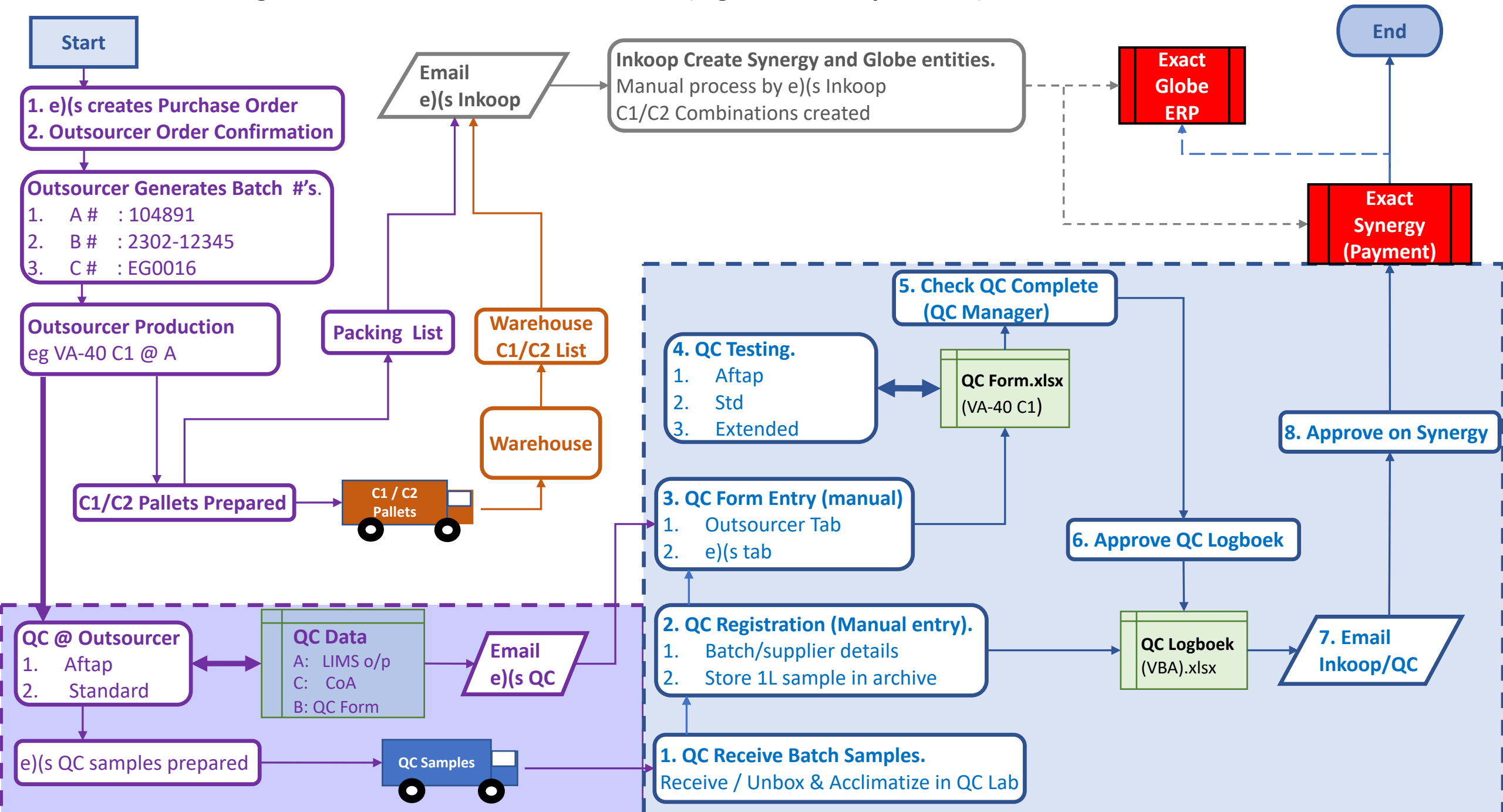
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Foam Partner



1. Chemical Processing : Current Process General QC Flow (e.g. VA-60 Component 1)



3. Challenges in QC

- The volume of QC testing in Haarlem is reducing, but the strain of data management increases.
- Haarlem QC is a small department of 3.
- It is impossible to feedback the outcome of testing to all suppliers.
- “No news becomes Good News”
- Everyone wants to know the Approval Status of “their” product!

Suppliers, Purchasing, Finance, Logistics and Sales.

- The time to introduce a LIMS system had come.
- AlisQI was selected and a Business Case proposed.

For VP products alone, a 20% of one FTE was predicted.

- Onboarding began in July 23, with the focus on Outsourced Chemical QC.

4. Chemical Analysis Set

Owner: Malcolm McLean

Outsourced Chemical Products (VP) by Tolling Manufacturer

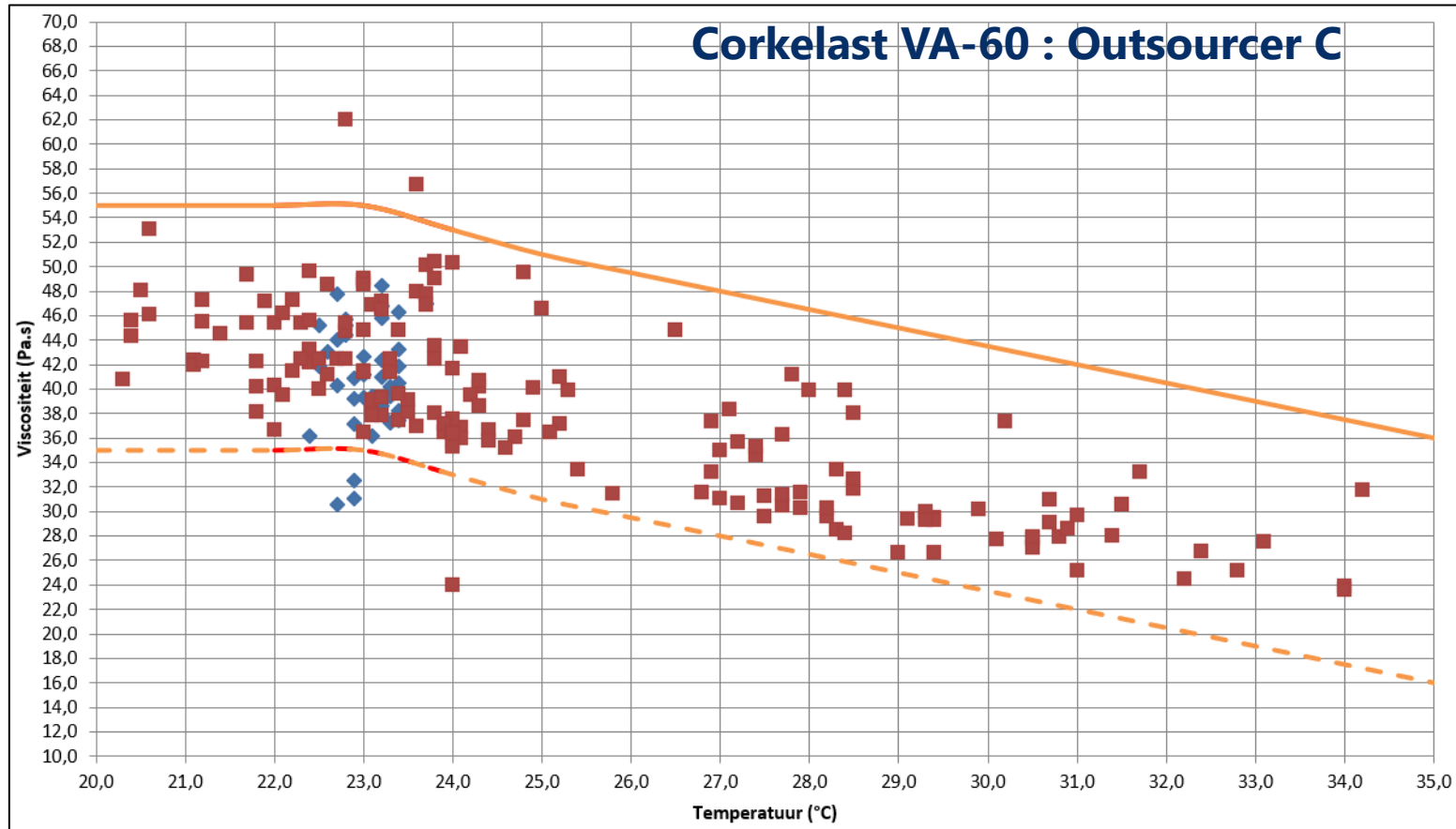
	Corkelasts	Jointelasts	Primers	Dex
Producer A	VA-40 - C1 VA-60 DB EBA - C1 VA-60 - C1 VA-70 - C1 VA-90 - C1	PU Extra 15 - C1 M-95 - C1 TO - C1 STP-25 - C1 STP-25 - C2		
Producer C	VA-40 - C1 VA-60 - C1 TO - C1 TO (m) - C1	PU Extra 15 - C1	Primer 21 Primer STP - C1 U90WB - C1 Primer STP - C2 U90WB - C2	Dex-G - C1 (Quartz Free) Dex-G - C2
Producer B	TO - C1		Primer 21 Primer STP - C1 U90WB - C1 Primer STP - C2 U90WB - C2	Dex-R 2k - C1+C2 Dex-R 2k - Combo Dex-K 2k - C1+C2 Dex-K 2k - Combo Dex-L 2ktix - C1+C2 Dex-L 2ktix - Combo Dex-G - C1 Dex-G - C2
Producer D				Dex-K 2k Dex-L 2k tix

Highlights

- 38 x Excel Forms > 1 x AlisQI Analysis Set.
- Viscosity & Pot Life checks automated (Next Slide).
- More efficient batch Approvals.
- Visible **Status** for all users to see.
- Counter to help Haarlem sampling frequency.
- Internal & External Specifications introduced.
- Standardised units across all supplier data.
- Quick and easy access to trend data.
- Tools to analyse the data & improve processes.

5. Automating Viscosity & Pot Life Checks

Viscosity & Pot Life are temperature dependant & Specifications are difficult to apply.



In excel, it was inefficient looking for the result to approve within a cloud of data.

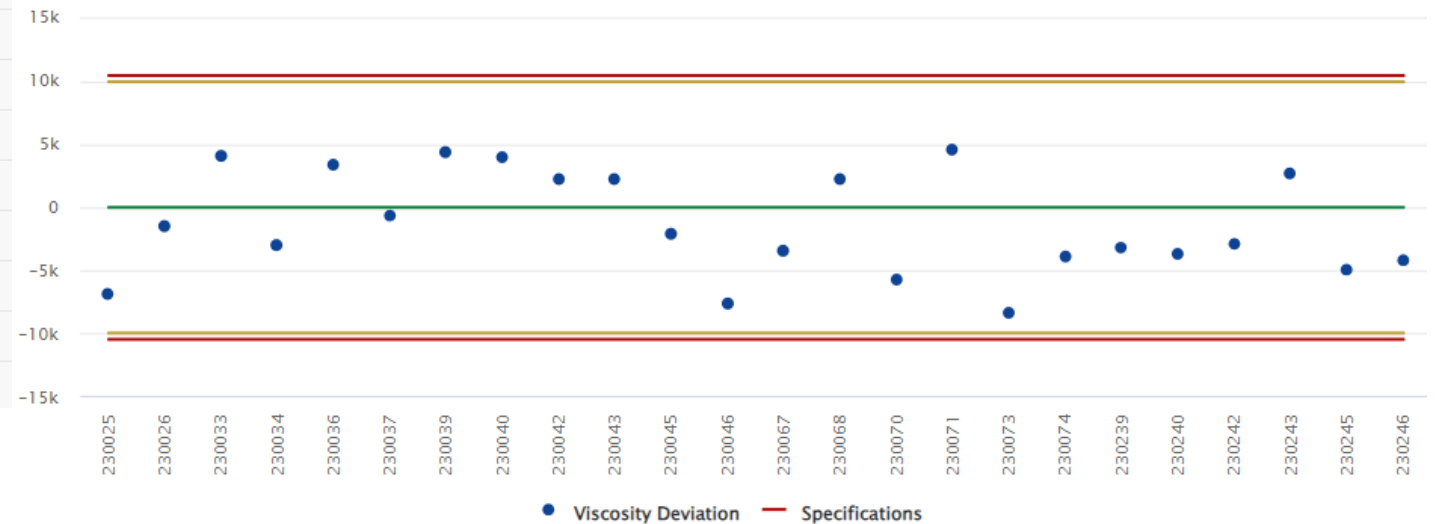
5. Automating Viscosity & Pot Life Checks

AlisQI Solution

ensity Tests M083 Viscosity Test

Batch#	Visc Spindle $f(x)$	Viscosity (M083) mPa.s	Temp-V (C1) °C	Specifications Viscosity $f(x)$	Viscosity Deviation $f(x)$	Viscosity in spec? $f(x)$
230246	R/6/10	37,200	24.8	31400 - 41400 - 51400	-4,200	OK
230245	R/6/10	29,900	29.1	24850 - 34850 - 44850	-4,950	OK
230243	R/6/10	47,700	21.1	35000 - 45000 - 55000	2,700	OK
230242	R/6/10	41,900	23.1	34800 - 44800 - 54800	-2,900	OK
230240	R/6/10	37,900	24.7	31600 - 41600 - 51600	-3,700	OK
230239	R/6/10	41,800	22.7	35000 - 45000 - 55000	-3,200	OK
230074	R/6/10	38,700	24.2	32600 - 42600 - 52600	-3,900	OK
230073	R/6/10	35,200	23.7	33600 - 43600 - 53600	-8,400	OK
230071	R/6/10	36,300	31.2	21700 - 31700 - 41700	4,600	OK
230070	R/6/10	30,600	28.1	26350 - 36350 - 46350	-5,750	OK
230068	R/6/10	39,500	27.5	27250 - 37250 - 47250	2,250	OK
230067	R/6/10	30,200	29.9	23650 - 33650 - 43650	-3,450	OK

- Measured Temperature is compared against a separate analysis set, which creates the Viscosity Specifications at 0,1 °C intervals.
- 'Viscosity Deviation' allows an SPC trend to be introduced to compare the measured viscosity versus the mid-spec value.



6. External User Accounts

- The data from our partners is **our** data and also required for our Customers.
- One of the key selling points of AlisQI for edilon)(sedra was the flexibility of the system and the provision of User Accounts.
- It provides a route for data to be directly entered by our partners "Correct first time".

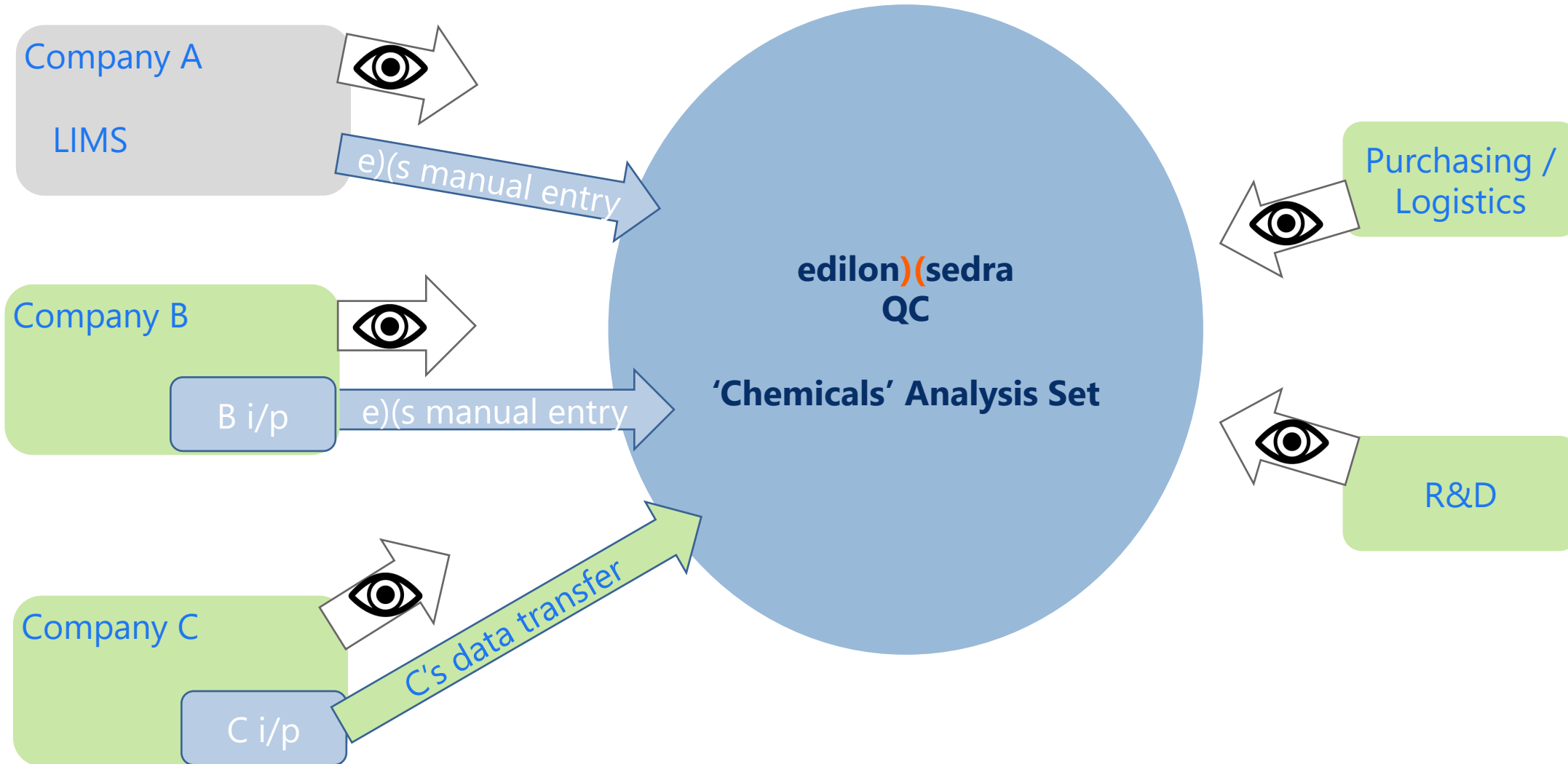
Challenges

- How to manage Read & Write privileges of outsourcers within an analysis set.
- The models home page has been disabled for our partners.
- Emailing data within customer accounts has been disabled.
- Introducing AlisQI to our partners.

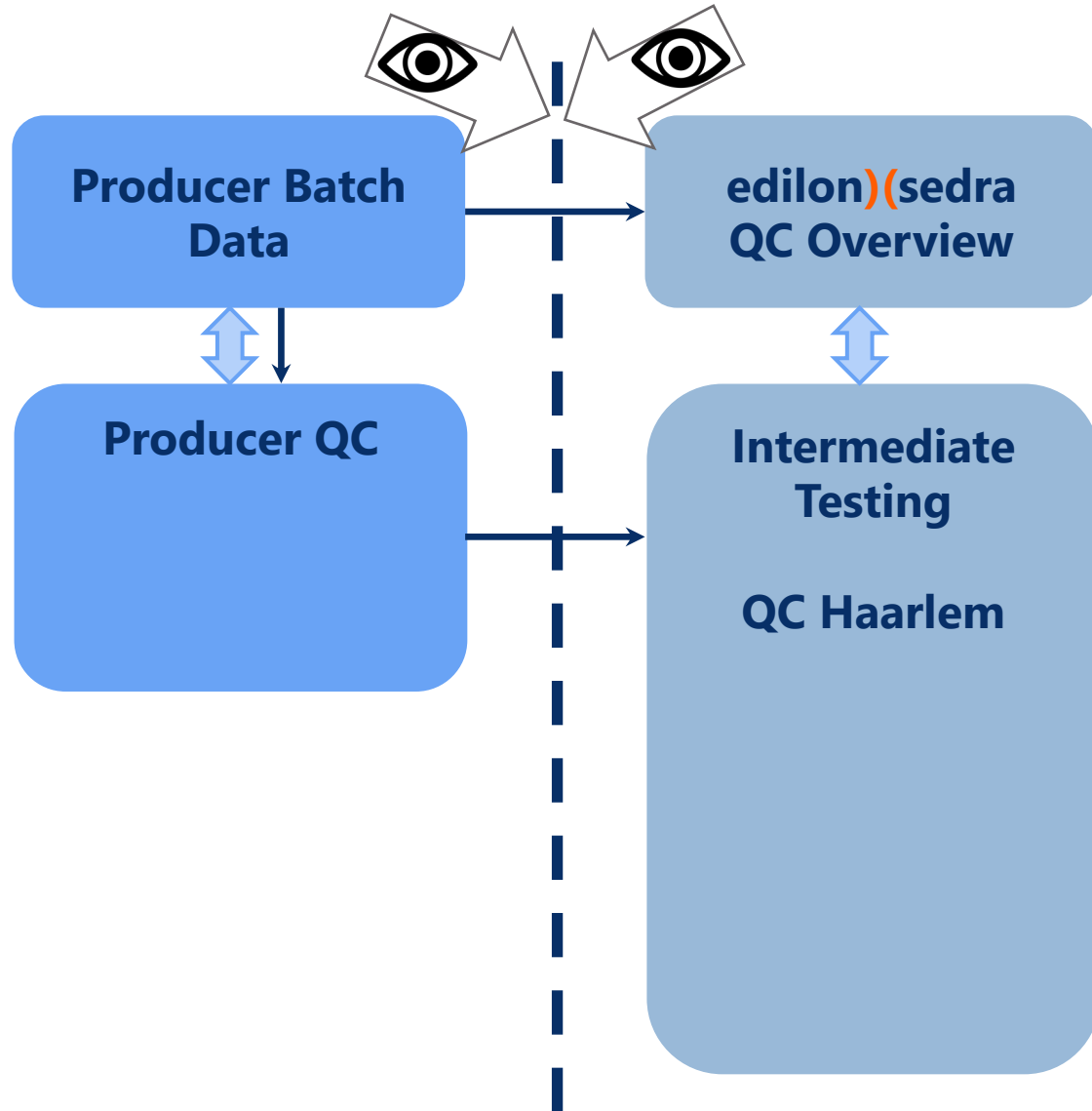
Solutions

The next two slides describe how we are implementing this.

6. AlisQI Customer Accounts – Chemical Partners



6. AlisQI Customer Accounts – RPU Foams



Final Product Approvals

Old Shared Excel Form

Quality Control Inspection Sheet according to Terms of Delivery R4885 rev-03		Production date:	see table	Batch number:	2405-102
Product	TRACKELAST RPU/Blue	Supplier	Bramming Plast-Industri AIS	BR QC	edilon) (sedra QC
Supplier	Bramming Plast-Industri AIS	Employee	BP	Remarks	1 QC Mat per 2000m ² per batch and minimum 2 QC Mats per batch. Only send these QC Mats to e) (s) when the BPI measurement pass the ToD criteria for QC Mats.
6/16 purchase order nr.	5010	Date	07.02.2024	16/02/2024	
6/16 article code	VHSTM				

Fill out the table with recorded values (OK / not OK for appearance; volume and density are calculated).

Bramming Plast Industri QC									
QC Mat	Block number T=Top, B=Bottom	Production date	Thickness Table 2.4.3	Appearance Table 2.4.2	Length Table 2.4.4	Width Table 2.4.4	Measured Mass	Calculated Volume	Density Table 2.4.5
Spec.	n/a	n/a	19.0-20.5 mm	OK	997-1003 mm	300-303 mm	n/a	n/a	156-174 kg/m ³
1	02 T	02.02.2024	19.9	OK	1002	302	982	6,02	163
2	04 B	02.02.2024	20.3	OK	1002	302	1010	6,14	164
3									
4									

edilon) (sedra QC														
QC Mat	Block number T=Top, B=Bottom	Thickness Table 2.4.3	Length Drawing Ha 2011-1148C	Width Drawing Ha2011-1149C	Measured Mass	Calculated Volume	Density Table 2.4.5	Compressive Modulus Est. A M070	Compressive Modulus Est. C M070	Water absorption M024	Compression set M065	Tensile strength TS M066	Strain at break ES M066	Tear strength TS M067
Spec.	n/a	19.0-20.5 mm	300-303 mm	300-303 mm	n/a	n/a	156-174 kg/m ³	0.20-0.46 MPa	0.09-0.15 MPa	< 30%	≤ 8%	≥ 0.5 MPa	≥ 250%	≥ 1.0 N/mm
1	02 TA	19,8	303	302	293	1,82	161	0,29	0,11	26	7	0,5	282	1,5
2														
3	04 BA	20,3	303	301	301	1,85	163	0,38	0,12	26	6	0,6	302	1,9
4														

7. Cost of Quality @ edilon)(sedra

- Scrap is low cost for us – If a product is OoS, we will find an alternative solution.

Real Cost Benefits to edilon)(sedra.

- The business data remains 'protected' but is now visible to interested colleagues.
- Our relationship with our business partners will improve with a shared data platform.
- We have immediate access to process trends and capabilities.
- We now have better tools to analyze our processes, to make informed decisions and act on them.
- An improved QC process leads to better On-Time delivery to our Customers.
- ~40% of the QC Managers Time is free'd up from Approval administration.
- Significant reduction in the time involved to find specific data.

8. The Future

A special thanks to all those involved in making AlisQI our QC system.

The work continues....

- QC Lims Specialist position created.
- Continue to develop the good foundations laid.
- Implement a Re-Vamped Calibration System into AlisQI
- Introduce API integration for Outsourcer A to realise a Lims – Lims transfer.
- Develop and Automate our Certificate of Analysis process for our customers.

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Thanks

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