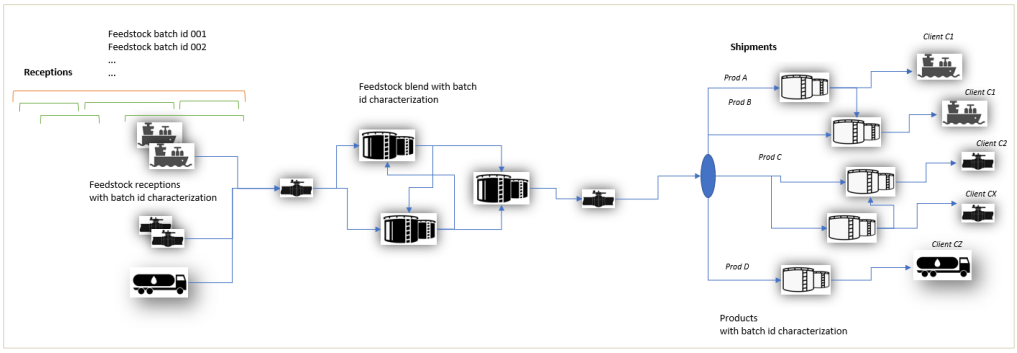
VISUALMESA
production accounting

Improving your business opportunities by including Feedstock-to-Product traceability in the Production Accounting process

Overview

Traceability of feedstock batches from the point of its reception, followed by their blending operations and through the processes into the finished products is a topic of major interest for refiners specially in the bio fuel sector. Having the possibility to track the distilled products back to the feedstock of origin provides useful feedback to evaluate the performance of those inputs in terms of how the different batches have been blended in order to meet some expected yields or to be able to optimize the future feedstock purchases in terms of quality and reception schedules and so on. In particular for the bio fuel sector, this kind of traceability constitutes a mandatory process to comply with bio fuel certification standards (ISCC, https://www.iscc-system.org/about/circular-economy/, etc.).



VM-PA™ Composition Tracking module has been extended to support the traceability of the feedstock from the reception points, through the processes into the finished products.

Different feedstock batches, each of them characterized by a given yield contribution and a batch ID that is tracked across the whole supply chain, are fed to the process. **VM-PA™** calculates the mixture from the reconciled balance considering all movements alongside the supply chain.
By considering the mixture characterization and the finished products details, theoretical yields are calculated. Once reconciliation is solved real yields are also calculated. This allows **VM-PA™** to track the feedstock batch of origin that resulted in each of the products.

VM-PA™ reports can show detailed information for tracking products back to their source feedkstock batches on a daily basis. It is worth mentioning that these results are based on trustful information validated as part of the site-wide production accounting process.

The traceability can include:

- The reception of different feedstock batches (named or mixtures or different qualities) at local or remote terminals.
- The blend at the reception tanks
- The transport of the blended batches to the other facilities for further blend or processing
- The processing of the feedstock batches through the process units

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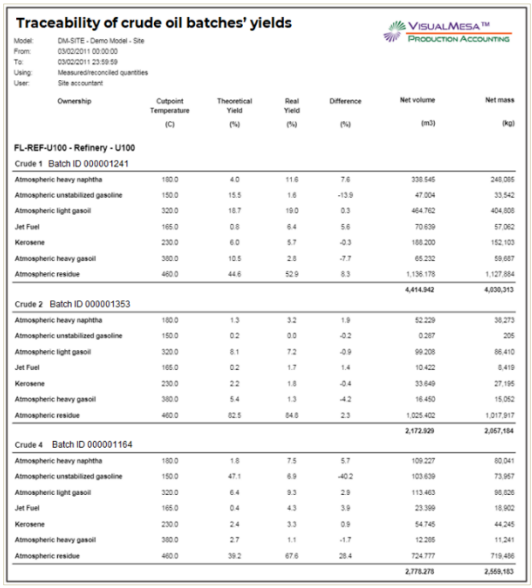
Results

Having the possibility to track the distilled products back to their origin provides useful feedback and enables improvements to:

- Deal with situations of different receptions of the same feedstock but with different quality. Having timely information to know whether a deviation of yields or quality can be associated with a specific batch is useful as it drastically reduces the time required to do the same kind of traceability manually.

- Allows to track when a given batch start being processed and when it is finished.



Traceability of crude oil batches' yields

VisualMESA™ Production Accounting

Model: DM-SITE - Demo Model - Site
From: 03/02/2011 00:00:00
To: 03/02/2011 23:59:59
Using: Measured/reconciled quantities
User: Site accountant

Ownership	Cutpoint Temperature (C)	Theoretical Yield (%)	Real Yield (%)	Difference (%)	Net volume (m3)	Net mass (kg)
FL-REF-U100 - Refinery - U100						
Crude 1 Batch ID 000001241						
Atmospheric heavy naphtha	180.0	4.0	11.6	7.6	338,545	248,085
Atmospheric unstabilized gasoline	150.0	15.5	1.6	-13.9	47,004	33,542
Atmospheric light gasoil	320.0	18.7	19.0	0.3	464,762	404,808
Jet Fuel	165.0	0.8	6.4	5.6	70,639	57,062
Kerosene	230.0	6.0	5.7	-0.3	168,200	152,103
Atmospheric heavy gasoil	360.0	10.5	2.8	-7.7	65,232	59,687
Atmospheric residue	460.0	44.6	52.9	8.3	1,136,178	1,127,884
					4,414,942	4,030,313
Crude 2 Batch ID 000001353						
Atmospheric heavy naphtha	180.0	1.3	3.2	1.9	52,229	39,273
Atmospheric unstabilized gasoline	150.0	0.2	0.0	-0.2	0,267	205
Atmospheric light gasoil	320.0	8.1	7.2	-0.9	99,208	86,410
Jet Fuel	165.0	0.2	1.7	1.4	10,422	8,419
Kerosene	230.0	2.2	1.8	-0.4	33,649	27,195
Atmospheric heavy gasoil	360.0	5.4	1.3	-4.2	16,450	15,052
Atmospheric residue	460.0	82.5	84.6	2.3	1,025,402	1,017,917
					2,172,929	2,057,194
Crude 4 Batch ID 000001164						
Atmospheric heavy naphtha	180.0	1.8	7.5	5.7	109,227	80,041
Atmospheric unstabilized gasoline	150.0	47.1	6.9	-40.2	103,639	73,957
Atmospheric light gasoil	320.0	6.4	9.3	2.9	113,463	96,826
Jet Fuel	165.0	0.4	4.3	3.9	23,399	18,902
Kerosene	230.0	2.4	3.3	0.9	54,745	44,245
Atmospheric heavy gasoil	360.0	2.7	1.1	-1.7	12,285	11,241
Atmospheric residue	460.0	39.2	67.6	28.4	724,777	719,486
					2,775,275	2,559,183

- Comply with mandatory traceability requirements for bio fuel certification standards.

- When there are issues with some finished products, tracking back these situations to the feedstocks is usually a burden as it normally requires looking back one or two month ago. Traceability requirements are increasing in terms of product sales, so people at the quality areas could solve this situation in a more practical way.

- Allows to simplify feedstock rotating reception schedules, blending and storage management, as well as enables a more suitable environment for price risk management.

- Allows to detect when feedstock assays become out of date or to monitor, adjust and optimize the operation to maximize a certain product.

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