Exhibit 2014

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Description	Page

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Date/Initials	Experiment
4 May 2016 SRT	Samples are analyzed according to following UPLC method:

ANALYTICAL INFORMATION

UPLC method

Column: Waters Acquity UPLC HSS C18, 2.1x100 mm, 1.8 µm

Eluent: 0.2% TFA in Water and 50:50; ACN:MeOH
Injection volume: 3.5 µ
Flow: 0.4 ml/min
Run time: 16 min
Internal standard: Saccharine (measured at 250nm)
Solvents
A 1: 0.2% TFA in Water
B 1: 50:50; ACN:MeOH

Binary Pump Program

Time (min)	Solvent A (%)	Solvent B (%)	Flow (ml/min)
Initial	98.0	2.0	0.40
4	90.0	10.0	0.40
10	85.0	15.0	0.40
12	44.0	56.0	0.40
13	2.0	98.0	0.40
14	2.0	98.0	0.40
15	98.0	2.0	0.40
16	98.0	2.0	0.40

Autosampler
Injection mode: Partial Loop with needle overfill
Weak Solvent wash 90/10 Water/MeOH
Strong Solvent wash 10/90 Water/MeOH

Column Temperature: 50°C

UV detector
Channel 1: 270 nm – Bandwidth 1.2 nm – detection of furanics
Channel 2: 250 nm – Bandwidth 1.2 nm – detection of standard saccharine

Collect 3D data
- Range 190 to 400 nm step 1.2 nm

by Indy 2016

SRT

Process and export results of sequence 160504_AM1630_RUN01_RUK
Use processing method "Processing Monomer Oxidation"
Export results into excel file "2016-02-Monomer-UPLC data-area" in the folder P:\xyAnalytics\Analytics\Processed data
Report to JRL

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Date/Initials	Experiment 3
12 MAY16 DVK	Introduction
	follow up experiments on Experiment 1 page 1
	Equipment
	QCS ϕ4 (LR-ϕ43)
	QCS block 2ϕ & 34
	Experimental procedure

12 MAY16 DVK

Calibration for project AM1630 T: 145, 160 and 180 oC
QCS (ID)
NAME/Date

Reactor content: 1.5 mL Acetic Acid 20 bar Air/N2

Stirring rate=750rpm

chemicals	supplier	Lot No	CAS N	Avantium Nr	MW	purity
HMF	Epochem	[illegible]	67-47-0	0341	126.11	99%
AMF	Aldrich	[illegible]	10551-58-3	0856	168.15	99%
DMSO	Biosolve	[illegible]	67-68-5	0814		99.80%
$Co(OAc)_2 \cdot 4H_2O$	Sigma-Aldrich	[illegible]	6147-53-1	5075	249.08	
$Mn(OAc)_2 \cdot 4H_2O$	Aldrich	[illegible]	6156-78-1	0858	245.09	99%
NaBr	Sigma	[illegible]	7647-15-6	5432	102.89	
Acetic Acid	Biosolve	[illegible]	64-19-7	0833	60.05	99.80%

SOLUTIONS	HMF needed (g)	HMF actual	AMF needed (g)	AMF actual	Acetic Acid (mL) needed	Acetic Acid (mL) actual
A	2.5	5.08085	0		25	50
B	1.5	2.94856	1.333	2.65379	25	50
C	1	1.96407	2.000	3.95063	25	50

CAT	$Co(AcO)_2 \cdot 4H_2O$ needed (mg)	$Co(AcO)_2 \cdot 4H_2O$ actual	$Mn(AcO)_2 \cdot 4H_2O$ needed (mg)	$Mn(AcO)_2 \cdot 4H_2O$ actual	NaBr needed (g)	NaBr actual	AcOH mL to mark
	226.643	226.7715	223.012	225.0715	187.243	187.612	85
	266.64	266.79	262.37	264.79	220.29	220.72	100

conditions: Air 20 bar, T = 145 oC, 1 hr reaction time

	QCS (ID)	amount (ml)	Cat (ml)	pressure	solution actual ->		Cat actual	before exp (mg)	after exp (mg)
AM1630-R1-13	A	0.5	1	20	43449.7	533.44	1048.27	46364.5	46371.1
AM1630-R1-14	B	0.5	1	20	44994.9	536.36	1049.46	47311.2	47321.7
AM1630-R1-15	C	0.5	1	20	43309.0	533.24	1046.93	46236.6	46247.5
AM1630-R1-16	C	0.5	1	20	43642.0	533.93	1047.82	46506.1	46520.1
AM1630 R1-17	B	0.5	1	20	42556.0	535.08	1047.73	45477	45489.3
AM1630 R1-18	C	0.5	1	20	43191.9	534.18	1047.97	46092.1	46102.1
AM1630 R1-19	A	0.5	1	20	43372.8	533.64	1046.82	46241.8	46259.5
AM1630 R1-20	A	0.5	1	20	42598.8	533.45	1047.42	45510.6	45527
AM1630 R1-21	C	0.5	1	20	43025.5	534.1	1048.27	45945.5	45957.4
AM1630-R1-22	A	0.5	1	20	43505.2	533.40	1048.32	46381.7	46393
AM1630-R1-23	B	0.5	1	20	43500.9	534.86	1047.68	46404.4	46416.4
AM1630-R1-24	B	0.5	1	20	43657.0	533.08	1048.1	46541.1	46555.7

QCS block: location as last time please! -->>

A	B	C	C
B	C	A	A
C	A	B	B

reactors:

1	2	3	4
5	6	7	8
9	10	11	12

clean blocks with sleeves
add stirrer and and weigh blocks
close and pressurize
place in pre-heated block according to settings
fill in log book
place immediately after reaction time (1Hr) in ice (30 minutes)
decompress and open in fumehood
if possible weigh reactors
make ES 70 mg/mL solution (350 mL) 0 mg/mL 24.5 gram 24500 mg sacharine in 350 mL (to mark 350)
add sacharine stock solution and stirr until dissolved -->>> **step 1: add 5 mL ES**
step 2: take 10uL and add to 3 mL water

take solutions and add them to sample vials containing H2O

calculations:							
sample work up:					step 2	add to:	
reactor content:	1.5 mL	step 1: Add ES	new concentrations:	mg/mL	use	H2O (mL)	final concentration
ES concentration:	70 mg/mL	mL added	sacharin	53.84615385	0.01	3	0.178890877
estimated furanics in rxn	61.88640834 mg	5	fdca	9.520992052			0.031631203

recipe:
step 1: Add ES (5 mL) directly to the reactor
ES 70 mg/mL 35 g 35.1365 gram
amount: 5 mL 500 mL 70.273 mg/mL

step 2: stir until all is dissolved
step 3: dilute
take 10 uL **of solution**
add to 3 mL **of water in a vial**

step 4: take 1 mL of the resulting solution and submit for UPLC analysis

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