Chuan-Che Liu Ph.D Senior Account Consultant tliu2@info.org

MethodesNow Introduction

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 A second s	and of the se	+ After washing, harvest the cells by a	issociating with 0.5 mL Accutate	for -5 minutes of come immediate	
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Toron 2014 Field Start (1990 The Start 40 of Field Start 40 o	and the second s	 Much the cells by adding 0.5 mL co 	old wash buffer (PBS with 2% her	Finactivated FRED to each hole	
	1000	To prepare 2% HI FBS in 2	10 mil PBS: add 0.4 mil of HI FBI	to 20 mL PBS.	
 ************************************	1 33	 Centrifuge all tubes at 250 x g for 1 	0 min at 4 °C.		
 ¹ and ¹ and 	1 200	an Remove the supernatant by aspirat	on. Resuspend the pellet by gen	ly raking the microcentrifuge tube acro	ss a test tube
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 A constructions of the discussion of the discu	NY AND	44 Set particle-only control tubes aside	in 1 mL cold PBS.		
 In ear entry and the start of t		13. Gy the cells by adding 100 µL of 41	% paraformaldehyde (PFA) in PB	S and allow the cells to stand for 15 m	in 2 /2071
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 An end with # fill. The Mark Book Book Book Book Book Book Book Bo		L Dille fox do remaine		The Canada Income States	10
 14 code 30. en 160 vince 100. en 1		14. Repeat steps 9 and 10.	wh huffer for 15 mins to perme	ablicte the cells. Hepeox surps a situ	nin at \$7 mile
Ban the other band band and the state of the state o		15. Incubate cells in 1 mL BD Pensive	an us of 1X shaloids Fluor 40	5 working solution and let so to as a	
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19. Appending the second product of and increased and these and the second a		the TpL of the billion	and the second sec	I vortex. Store samples in the dark i	
1: Fold Later retension years in the second se		17. Repeat steps 13 and 14	0.5 mL of cold wash currer an		-h sleve to F
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Methal acrylate

Equipment Used

TD/GC/MS system, 6890/5973, Agilent

Conditions

Chromatographic

GC Injector temperature- split, 230 °C, split ratio-10:1 ; flow rate- 1 mL/min (35 cm/s) ; Temperature program- -10 °C hold for 3 min, 8 °C min⁻¹ to 20 °C, hold for 3 min, 5 °C min⁻¹ to 120 °C, hold for 1 min, 20 °C min⁻¹ to 250 °C, hold for 1 min ; total run time- 37.15 min

Instrument

MS quad temperature- 150 °C ; MS sorce temperature- 230 °C ; thermal desorption dry purge flow rate- 40 mL/min, Dry purge time- 1 min, Inject time- 1 min

Instructions

Laboratory sample preparation

- 1. Obtain seven point calibration curves using 2 µL loadings containing 0.3, 0.5, 1, 3, 10, 30 and 100 ng of each compound for scan mode tests.
- 2. Use duplicate tubes and analyses for this method.

Field sample preparation

- 1. Randomly select 51 non-smoking homes by phone call, and sample 8 to 10 homes each week.
- 2. Collect duplicate passive samplers inside and outside of each residence over a 3 to 4 day period.
- 3. Use a sampling volume of ~2 L.
- 4. Obtain 4 field blanks each week.
- 5. Obtain 51 indoor sample measurements and 41 outdoor sample measurements.
- 6. Analyze using scan mode.
- 7 Obtain results for each pair in duplicates

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DSNOW"

Methal acrylate

TD/GC/MS Method

- 1. Use 10 cm length, 6 mm OD and 4 mm ID stainless-steel sampling and thermal desorption tubes with tapered screw threads on both ends.
- 2. Pack each tube from upstream to downstream with 160 mg of Tenax GR and then 70 mg of Carbosieve SIII separated by glass wool plugs.
- 3. The 94 target compounds include aromatics, halogenated compounds, terpenes, alkanes and carbonyls.
- 4. Select the volatile organic compounds (VOCs) based on toxicity and frequency of occurrence.
- 5. Include fluorobenzene and p-bromo- fluorobenzene as internal standards (IS) for quantification.
- 檢索呈現 6. Analyze laboratory and field samples using an Agilent 6890/5973 GC/MS system running ChemStation (G1701BA, Version B.01, Hewlett-Packard, Pala Alto, CA, USA). 1.摘要
- 7. Employ a capillary column of 30 m x 0.25 mm id with 0.25 µm film thickness (HP-5MS, Hewlett-Packard, Santa Clarita, CA, USA).
- 8. Spike each tube (sample or blank) with 2 µL of an internal standard solution containing 2 ng each of fluorobenzene and p-bromo- fluorobenzene.
- 9. Thermally desorb, cryofocuse and analyze it by gas chromatography mass spectrometry (GC/MS) following methods and quality control procedures.
- 10. Use identical thermal desorption, gas chromatography (TD/GC) conditions for both scan and SIM methods.

Scan-mode Analysis

1. Run the MS from 1.2-2.5 min after desorption to detect early elution of 1,3-butadiene, an important air toxic, turning the MS off from 2.5 to 4.2 min t avoid the IS solvent peak, and then resuming MS operation from 4.2 to 37.15 min to detect the remaining compounds.

Validation

Limit of Detection

0.026 µgm⁻³, benzene 0.033 µgm⁻³, toluene

0.019 µgm⁻³, ethylbenzene

0.03 µgm⁻³, p-xylene, m-xylene

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儀器設定

5. 儀器步驟

6. 確效範圍

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Experimental Procedure

Macromolecules Step 1

In a typical copolymerization, the surfactant solution was purged with nitrogen gas for 15 min and subsequently transferred to a pressure stable reactor. Next, the surfactant solution was subjected to three nitrogen/vacuum cycles. A purged solution of DoPAT in acrylonitrile was introduced into the reactor under inert conditions followed by addition of 1,3-butadiene to the reactor via a metal buret, which had been decassed by three nitrogen/vacuum cycles prior to the addition of 1.3-butadiene. The mixture was stirred at 600 rpm and heated to the polymerization temperature (e.g., 50 °C) prior to addition of triethylamine (TEA) base and potassium persulfate (KPS) initiator. The surfactant has been added in such a way that its concentration exceeds the critical micelle concentration. For simplicity, it is assumed that a potential micellar behavior of DoPAT can be ignored. The azeotropic feed composition (38/62) has been confirmed experimentally, indicative of a limited effect of partitioning. It should be stressed that in addition to the temperature the decomposition rate of persulfates is affected by pH and basicity with an increased basicity leading to an increased rate of decomposition. 29-31 The use of base activation of KPS allows for moderate temperatures (45-55 °C) to be employed for the decomposition of the initiator, explaining the aforementioned initiation procedure.

us we can do more

Step 2

NBR Chain Extension in Solution. Trithiocarbonate & functional NBR (2.0 g), as obtained via the emulsion RAFT polymerization, was dissolved in chlorobenzene, then styrene (48 mmol) and AIBN (0.015 mmol) were added to the solution. The resulting mixture was degassed by four freeze-pump-thaw cycles and backfilled with nitrogen gas. The flask was subsequently immersed in a preheated oil bath at 55 °C, and the reaction was allowed to proceed for 12 h. The resulting polymer was precipitated in chilled ethanol and dried under vacuum at ambient temperature for 24 h. For the evaluation of the chain extension experiments, an SEC calibration with narrow polystyrene standards was employed.



MethodsNow – Step by Step procedure

MethodsNow

RAFT-Mediated ab Initio Emulsion Copolymerization of 1,3-Butadiene with Acrylonitrile

By Halele, Lebohang; D'hooge, Dagmar R.; Duerr, Christoph J.; Kaiser, Andreas; Brandau, Sven; Barner-Kowollik, Christopher From Nacromolecules (Washington, DC, United States), 47(9), 2820-2829; 2014 Published by American Chemical Society

Reaction Steps 1 2		
$ \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ $		
Products	Acrylonitrile-butadiene copolymer, CAS RN: 9003-18-3	
Reactants	Acrylonitrile, CAS RN: 107-13-1 1,3-Butadiene, CAS RN: 106-99-0	
Reagents	2-[[(Dodecylthio)thioxomethyl]thio]propanoic acid, CAS RN: 558484-21-2 Triethylamine, CAS RN: 121-44-8	
Catalysts	Potassium persulfate, CAS RN: 7727-21-1	
Procedure	 Purge the surfactant solution with nitrogen gas for 15 min and subsequently transfer to a pressure stable reactor. Subject the surfactant solution to three nitrogen/vacuum cycles. Introduce a purged solution of DoPAT in acrylonitrile into the reactor under inert conditions following with addition of 1.3-butadiene to the reactor via a metal buret, that was degassed by three nitrogen/vacuum cycles prior to the addition of 1.3-butadiene. Stir the mixture at 600 rpm and heat to the polymerization temperature (e.g., 50 °C) prior to addition of triethylamine (TEA) base and potassium persulfate (KPS) initiator. Add surfactant in such a way that its concentration exceeds the critical micelle concentration. Assume that a potential micellar behavior of DoPAT can be ignored. 	
CAS Method Number	3-614-CA5-2717173	
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RAFT-Mediated ab Initio Emuision Copolymerization of 1,3-Butadiene with Acrylonitrile

By Halele, Lebohang; D'hooge, Dagmar R.; Duerr, Ohristoph J.; Kaiser, Andreas; Brandeu, Sven; Barner-Kowollik, Ohristopher From Macromolecules (Washington, D.C., United States), 47(9), 2820-2829; 2014 Published by American Ohemical Society



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RAFT-Mediated ab Initio By Hlalele, Lebohang, DT Christopher From Macromolecules (W Published by American C Step 1	Emulsion Copolymerization of 1,3-Butadiene with Acrylonitrile hooge, Dagmar R.; Duerr, Christoph J.; Kaiser, Andreas; Brandau, Sven; Barner-Kowollik, /ashington, DC, United States), 47(9), 2820-2829; 2014 hemical Society ■N + /// • // • // • // • // • // • // •	RAFT-Mediated ab Initio Er By Hlalele, Lebohang; D'ho Christopher From Macromolecules (War Published by American Che Step 2	SciFinder® Page 1 nulsion Copolymerization of 1,3-Butadiene with Acrylonitrile oge, Dagmar R.; Duerr, Christoph J.; Kaiser, Andreas; Brandau, Sven; Barner-Kowollik, shington, DC, United States), 47(9), 2820-2829; 2014 mical Society
Draducto	Assistilla hutadiana assolutear CAS DN: 0002-48-2		
Reactants	Acrylonitrile- Dutatiene copolymer, CAS RN: 9003-18-3 Acrylonitrile, CAS RN: 107-13-1 1.3-Butadiene, CAS RN: 106-99-0		
Reagents	2-[[(Dodecythio)thioxomethyl[thio]propanoic acid, CAS RN: 558484-21-2 Triethylamine, CAS RN: 121-44-8		\sim
Catalysts	Potassium persulfate, CAS RN: 7727-21-1		[Reactant]
Procedure	1. Purge the surfactant solution with nitrogen gas for 15 min and subsequently transfe a pressure stable reactor	Products	2-Propenenitrile, polymer with 1,3-butadiene and ethenylbenzene, diblock, CAS RN: 749886-85-9
	 Subject the surfactant solution to three nitrogen/vacuum cycles. 	Reactants	Acrylonitrile-butadiene copolymer, CAS RN: 9003-18-3 Styrene, CAS RN: 100-42-5
	3 Introduce a purged solution of DoPAT in acrylonitrile into the reactor under inert	Catalysts	Azobisisobutyronitrile, CAS RN: 78-67-1
	5. Introduce a purged solution of bor A1 in acrytomatic into the reactor under mere	Solvents	Chlorobenzene, CAS RN: 108-90-7
	was degassed by three nitrogen/vacuum cycles prior to the addition of 1,3-butadier	Procedure	1. Dissolve Trithiocarbonate ω -functional NBR (2.0 g) in chlorobenzene.
	4. Stir the mixture at 600 rpm and heat to the polymerization temperature (e.g., 50 °C		2. Add styrene (48 mmol) and AIBN (0.015 mmol) to the solution.
	prior to addition of triethylamine (TEA) base and potassium persulfate (KPS) initiate		3. Degas the resulting mixture with four freeze-pump-thaw cycles and backfill with
	5. Add surfactant in such a way that its concentration exceeds the critical micelle		nitrogen gas.
	concentration.		- Subsequently initialise the hask in a preneated on bath at 55 °C.
	6. Assume that a potential micellar behavior of DoPAT can be ignored.		5. Allow the reaction to proceed for 12 h.
CAS Method Number	3-614-CAS-2717173		6. Precipitate the the resulting polymer in chilled ethanol.
			7. Dry the mixture under vacuum at ambient temperature for 24 h.
		CAS Method Number	3-614-CAS-2463870

A CAS SOLUTION

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