Author's Accepted Manuscript

www.elsevier.com/locate/talanta

Temperature-dependent schlieren effect in liquid flow for chemical analysis

Jintana Suwanrut, Nattapong Chantipmanee, Wichayaporn Kamsong, Supatana Buking, Thitirat Mantim, Phoonthawee Saetear, Duangjai Nacapricha

PII: S0039-9140(18)30549-6
DOI: https://doi.org/10.1016/j.talanta.2018.05.055
Reference: TAL18696

To appear in: *Talanta*

Received date: 28 December 2017
Revised date: 10 May 2018
Accepted date: 16 May 2018

Cite this article as: Jintana Suwanrut, Nattapong Chantipmanee, Wichayaporn Kamsong, Supatana Buking, Thitirat Mantim, Phoonthawee Saetear and Duangjai Nacapricha, Temperature-dependent schlieren effect in liquid flow for chemical analysis, *Talanta,* https://doi.org/10.1016/j.talanta.2018.05.055

Temperature-dependent schlieren effect in liquid flow for chemical analysis

Jintana Suwanrut[a,b,*], Nattapong Chantipmanee[a,c], Wichayaporn Kamsong[a,c], Supatana Buking[a,c], Thitirat Mantim[a,d], Phoonthawee Saetear[a,c,*], Duangjai Nacapricha[a,c,*]

[a]Flow Innovation-Research for Science and Technology Laboratories (*FIRSTLabs*)

[b]Department of Chemistry, Faculty of Science, Ramkhamhaeng University, Bangkok 10240, Thailand

[c]Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Mahidol University, Bangkok 10400, Thailand

[d]Department of Chemistry, Faculty of Science, Srinakharinwirot University, Bangkok 10110, Thailand

E-mail address: kanejintana@gmail.com (J. Suwanrut)

E-mail address: phoonthawee.sae@mahidol.ac.th

psaetear@gmail.com (P. Saetear)

E-mail address: duangjai.nac@mahidol.ac.th,

dnacapricha@gmail.com (D. Nacapricha)

[*]Corresponding author. Tel.: +66 2 201 5122; Fax: +66 2 201 5127

Abstract

In flow analysis, such as flow injection analysis, liquid lens is formed at the boundary between two adjacent liquid media which have different refractive indices. Light refraction at the liquid interface gives the so-called ‘schlieren signal’. Schlieren effect is both concentration-dependent and temperature-dependent. In this work, the schlieren signal from