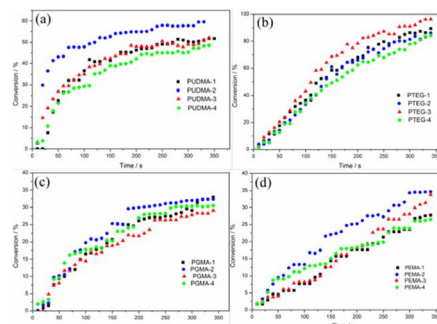


363 Synthesis, thermal studies and conversion degree of dimethacrylate polymers using new non-toxic cointitiators

Rafael T. Alarcon, Bruno B. da C. Holanda, Daniel Rinaldo, Flávio J. Caires, Marcos V. de Almeida and Gilbert Bannach

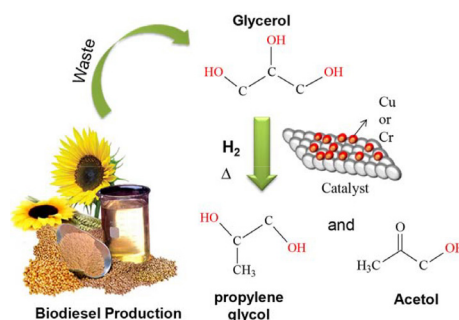
This work shown synthesis, thermal behavior and conversion degree of some dimethacrylates polymers using different non-toxic cointitiators, the monomer conversions were analyzed by MIR.



371 Selective hydrogenolysis of glycerol to propylene glycol in a continuous flow trickle bed reactor using copper chromite and Cu/Al<sub>2</sub>O<sub>3</sub> catalysts

Jorge Sepúlveda, Debora Manuale, Lucia Santiago, Nicolás Carrara, Gerardo T. C. Vera, Maraisa Goncalves, Wagner Carvalho and Dalmo Mandelli

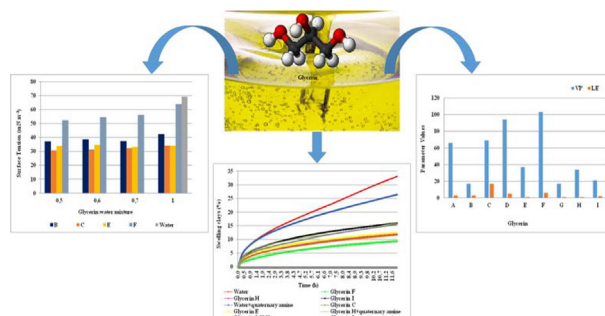
Utilization of chromite or Cu/Al<sub>2</sub>O<sub>3</sub> as catalyst for transformation of glycerol into value added materials: Higher selectivity for propylene glycol and acetol products.



378 Avaliação do potencial uso de bioglicerina como base para formulação de fluidos de perfuração aquosos para poços de petróleo e gás

Cleysson C. Corrêa, Georgiana F. da Cruz, Alexandre S. L. Vaz Jr, Bianca de S. A. Araújo, Alexsandro A. da Silva, Rafael A. Rodrigues, Rosana F. T. Lomba e Alex T. de A. Waldmann

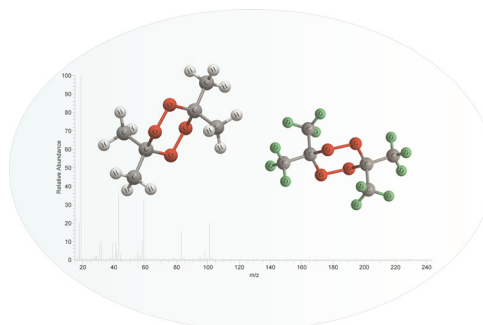
We propose to use the unique properties of the glycerin as an environmentally friendly alternative to the diesel or synthetic-based drilling fluids to formulation of drilling fluid for oil wells and gas.



388 Thermal decomposition reaction in ethanol solution of deuterated acetone cyclic diperoxide and acetone diperoxide. Secondary inverse isotopic effect

Karina Nesprias, Gladys Eyley, Adriana Cañizo and Gastón Barreto

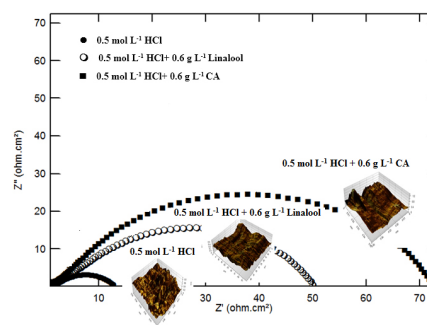
Acetone and deuterated acetone diperoxides.



- 395 Comparative study of the inhibitive action between the bitter orange leaf extract and its chemical constituent linalool on the mild steel corrosion in HCl solution

Ashraf M. Abdel-Gaber, Khadija M. Hijazi, Ghassan O. Younes and Bilal Nsouli

The 3D images obtained from atomic force microscope (AFM) indicate that the reduction in the surface roughness of mild steel in the presence and absence of CA leaf extract and Linalool are in agreement with the results obtained from electrochemical impedance spectroscopy.



- 402 A conceptual DFT study of the chemical reactivity of magnesium octaethylporphyrin (MgOEP) as predicted by the minnesota family of density functionals

Juan Frau, Francisco Muñoz and Daniel Glossman-Mitnik

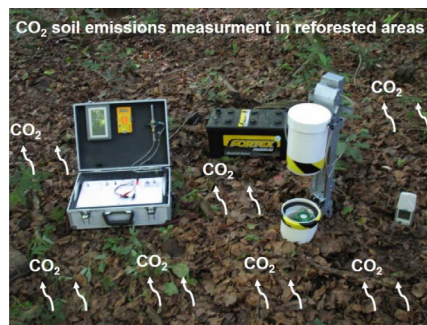
The Minnesota family of density functionals has been assessed for the calculation of the Conceptual DFT descriptors of Magnesium Octaethylporphyrin (MgOEP).



- 407 Quantificação das emissões de CO<sub>2</sub> pelo solo em áreas sob diferentes estádios de restauração no domínio da mata atlântica

Gabriel R. Castellano, Leandro X. Moreno, Amauri A. Menegário, José S. Govone e Didier Gastmans

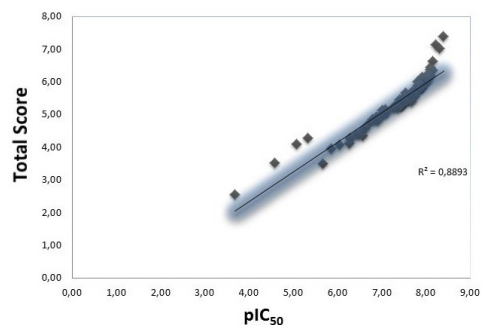
CO<sub>2</sub> soil emissions measurements in reforested areas.



- 413 Computational study of the interaction between indene pyrazole and cyclin dependent kinase 2

Juan Enrique Torres, Juan Pablo Toro, Javier Vergara, Rosa Baldiris and Ricardo Vivas Reyes

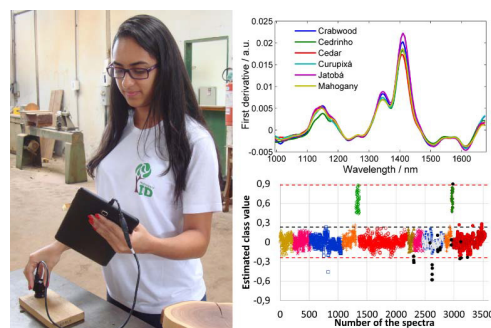
Correlation between biological activity and theoretical coupling of indene pyrazol ligands in CDK2 target.



- 418 Avaliação de espectrômetro NIR portátil e PLS-DA para a discriminação de seis espécies similares de madeiras amazônicas

Liz F. Soares, Diego C. da Silva, Maria C. J. Bergo, Vera T. R. Coradin, Jez W. B. Braga e Tereza C. M. Pastore

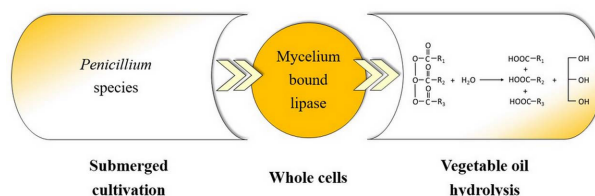
Handheld Near Infrared spectrometer and PLS-DA has been successfully applied to discriminate between similar Amazonian wood species. The method can be applied for supervision of wood exploitation, contributing to the woody species preservation.



- 427 Seleção de espécies do gênero *Penicillium* produtoras de lipase ligada ao micélio para aplicação em hidrólise de óleos vegetais

Braz S. Marotti, Daniela V. Cortez, Daniel B. Gonçalves e Heizir F. de Castro

*Penicillium* is a genus of Ascomycetes that occurs in a wide range of habitats and is considered a potential producer of both mycelium bound and extracellular lipases. Mycelium bound lipases were obtained from selected *Penicillium* sp and successfully applied to the hydrolysis of vegetable oils having different fatty acids composition.

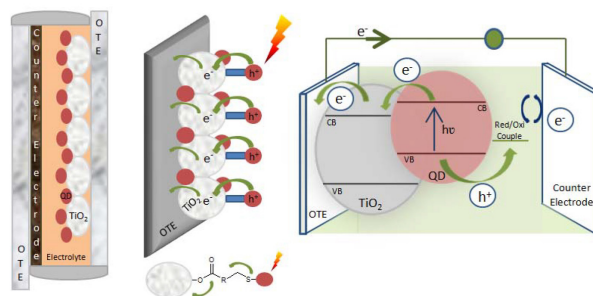


## Revisão

- 436 Células solares sensibilizadas por pontos quânticos

Ana B. F. Vitoreti, Leticia B. Corrêa, Ellen Raphael, Antonio O. T. Patrocinio, Ana F. Nogueira e Marco A. Schiavon

Quantum dot-sensitized solar cells are attractive energy devices because they are easy to fabricate, have potentially low cost with different possibilities of combinations, and ability to generate multiple excitons.

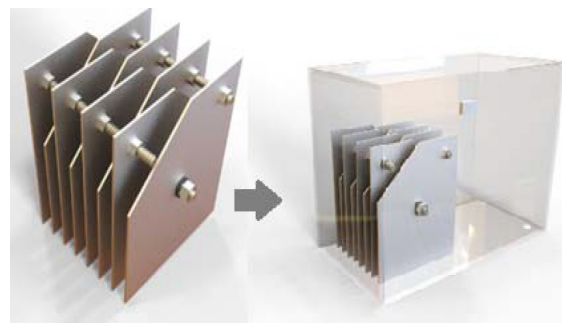


## Nota Técnica

- 447 Validação do processo de eletrocoagulação e avaliação da eletrodissolução de eletrodos no tratamento de efluentes de abatedouros de aves

M<sup>a</sup> Paulina M. Combatt, Regina C. S. Mendonça, Gerson de F. S. Valente e Cláudio M. Silva

Schematic diagram of electrocoagulation reactor proposed in this research and the electrodes used for testing the poultry slaughterhouse wastewater treatment.



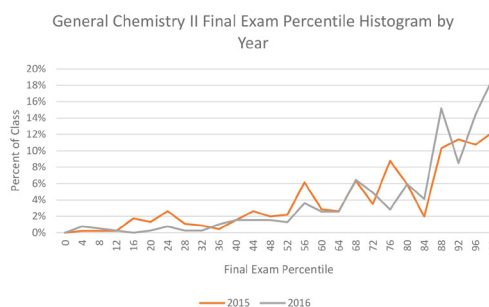
## Educação

- 454 Faculty and student goals for undergraduate laboratory  
*Marcy H. Towns*



Students hold entirely different goals that may pose obstacles for faculty achieving the goals they have set out. Herein we describe our research and propose methods of bringing these goals into better alignment.

- 456 How we have used Item Response Theory and Classroom Management to improve student success rates in large General Chemistry classes  
*Brock L. Casselman, Braden R. Ohlsen and Charles H. Atwood*



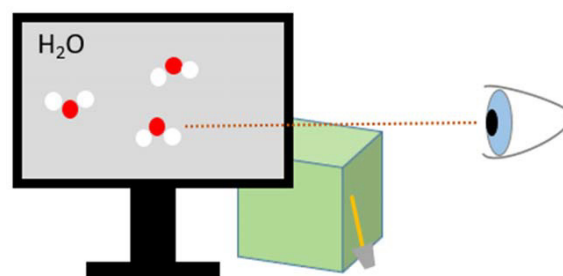
Between 2015 and 2016, two major changes were introduced to the general chemistry courses: metacognitive training through practice tests and implementation of the flipped classroom. The result was a 6.1 average percentile improvement on the American Chemical Society nationally normed final exam.

- 465 An inquiry-based freshman biochemistry lab set to enhance students' autonomy  
*Thanuci Silva e Eduardo Galembeck*



Students exposed to an inquiry-based laboratory environment improves long-lasting autonomy skills.

- 469 Studying student behavior and chemistry skill using browser-based tools and eye-tracking hardware  
*Norbert J. Pienta*



Technology is being used extensively in instruction and is now part of research studies, including the use of eye-tracking hardware. The latter can be used to examine user's gaze location, duration and pattern (i.e., steps). The latter process is represented.

476 Exploring the design and use of molecular animations that  
conflict for understanding chemical reactions

*Resa M. Kelly and Sarah J. R. Hansen*

Eye-tracking research supports the development of effective strategies for designing and presenting videos and animations created to assist students with making connections between macroscopic and molecular level behaviors of chemical reactions.

