Autor(en) des Beitrags:
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Titel des Beitrags:
Analysis of the Impact of Individual Glass Constituents on Electrocataylsis on Pt Electrodes in Alkaline Solution

Abstract:
In the previous paper [ibid., P1 (2008)] the authors reported on the impact of glass corrosion on establishing the electrocatalytic activity of fuel cell catalysts. The leaching of glass constituents into the electrolyte is responsible for insufficiently reproducible measurements of the oxygen redn. reaction as well as the hydrogen oxidn. reaction on polycryst. Pt. The authors elucidate which glass constituents are leached into the electrolyte through the anal. of alk. electrolytes in contact with Duran glass by inductively coupled plasma optical emission spectroscopy. By adding these constituents, i.e., silicates, borates, aluminates, and lead, sep. to the electrolyte, the authors evaluate their individual impact on electrocatalytic measurements. The results presented in this study help to explain the effects seen in measurements in alk. electrolyte with glass cells. [on SciFinder(R)]

Stichworte:
Corrosion Leaching Oxidation Reduction (Duran glass corrosion and leaching effect in oxygen electrochem. redn. and hydrogen electrochem. oxidn. on platinum in alk. soln.) Aluminates Borates Silicates Role: NUU (Other use, unclassified), USES (Uses) (anal. of impact of individual glass constituents on electrocatalysis on Pt electrodes in alk. soln.) Borosilicate glasses Role: NUU (Other use, unclassified), PEP (Physical, engineering or chemical process), PROC (Process), USES
(Uses) (sodium borosilicate corrosion and leaching effect in oxygen electrochem. redn. and hydrogen electrochem. oxidn. on platinum in alk. soln.) Electrodeposits (underpotential, lead inhibiting effect in hydrogen electrochem. oxidn. in alk. soln.) impact glass constituent electrocatalysis platinum electrode alk soln oxygen electroredn platinum alk soln effect component glass leaching

Kongresstitel:
CAN 149:90108 72-2 Electrochemistry Institut fuer Physikalische Chemie 1, Technische Universitaet Muenchen, Garching, Deutschland, Germany. Journal 0013-4651 7440-06-4 (Platinum) Role: CAT (Catalyst use), TEM (Technical or engineered material use), USES (Uses) (Duran glass corrosion and leaching effect in oxygen electrochem. redn. and hydrogen electrochem. oxidn. on platinum in alk. soln.); 1333-74-0 (Hydrogen); 7782-44-7 (Oxygen) Role: RCT (Reactant), RACT (Reactant or reagent) (Duran glass corrosion and leaching effect in oxygen electrochem. redn. and hydrogen electrochem. oxidn. on platinum in alk. soln.); 14175-55-4 (Silicon ion(2+)) Role: NUU (Other use, unclassified), USES (Uses) (oxygen electrochem. redn. and hydrogen oxidn. on platinum in KOH soln. contg. Pb2+ and impact of individual glass constituents on electrocatalysis on Pt electrodes in alk. soln.); 14280-50-3 (Lead ion(2+)) Role: NUU (Other use, unclassified), USES (Uses) (oxygen electrochem. redn. on platinum in KOH soln. contg. Pb2+ and impact of individual glass constituents on electrocatalysis on Pt electrodes in alk. soln.); 7439-92-1 (Lead) Role: NUU (Other use, unclassified), PEP (Physical, engineering or chemical process), PROC (Process), USES (Uses) (underpotential deposits on platinum; inhibiting effect in hydrogen electrochem. oxidn. in alk. soln.)

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