

AE-347: Preparation of stock solutions for the irradiation of [Ru(bpy)3]Cl2 * 6 H2O

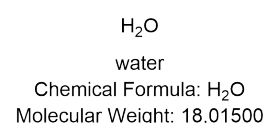
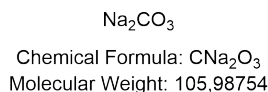
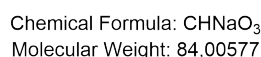
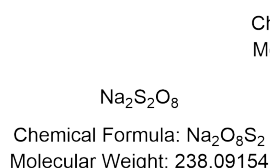
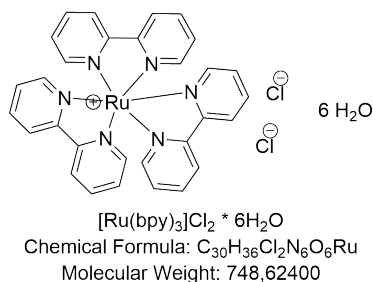
Date: 2024-09-11

Tags: [Ru(bpy)3]Cl2*6 H2O Stocksolution AE HTE

Status: Done

Created by: Alexander Eith

Reaction scheme/sample structure



Literature/reference experiments

| | |
|--------------------|---|
| Literature | https://doi.org/10.1021/acscatal.6b02595 |
| Reproduction | / |
| Related experiment | AE-323: Preparation of stock solutions for the irradiation of [Ru(bpy) ₃]Cl ₂ * 6 H ₂ O AE-334: Preparation of stock solutions for the irradiation of [Ru(bpy) ₃]Cl ₂ * 6 H ₂ O AE-342: Preparation of stock solutions for the irradiation of [Ru(bpy) ₃]Cl ₂ * 6 H ₂ O I |

Reagents

| Name | CAS Number / Experiment Number | Amount [mmol] | Equivalents | Mass _{theo} [mg] | Mass _{exp} [mg] | Molar mass [g/mol] | Volume [ml] | density [g/mL] |
|---|--------------------------------|---------------|-------------|---------------------------|--------------------------|--------------------|-------------|----------------|
| Sodiumhydrogen carbonate | 144-55-8 | 8 | / | 847.90 | 849.04 | 84.006 | / | / |
| Sodium carbonate (anhydrous) | 497-19-8 | 15 + 8 | / | 1260.1 + 672.05 | 1258.59 + 671.75 | 105.988 | / | / |
| Sodium hexafluorosilicate | 16893-85-9 | 1.4 | / | 198.74 | 198.90 | 188.05 | / | / |
| Sodium persulfate | 7775-27-1 | 0.600 | / | 357.14 | 356.90 | 238.09 | / | / |
| [Ru(bpy) ₃]Cl ₂ * 6 H ₂ O | 50525-27-4 | 3 µmol | / | 2.246 | 2.06 | 748.62 | / | / |
| Milli-Q water | 7732-18-5 | / | / | / | / | 18.015 | 105 | 1 |

Procedure/observations

| Date | Time | Step | Observations |
|-------|------|--|---|
| 15.07 | 8:20 | Na ₂ CO ₃ and NaHCO ₃ (671.75 mg) was weighed into a 15 mL vial NaHCO ₃ (1258.59 mg) was weighed into a 15 mL vial Na ₂ SiF ₆ was weighed into a 50 mL vial Na ₂ S ₂ O ₈ was weighed into a 50 mL vial [Ru] was weighed into a 15 mL vial | AE-347-1 AE-347-2 AE-347-3 AE-347-4 AE-347-5 |
| | 8:35 | To -1 10 mL water was added to -2 15 mL water was added to -3 40 mL water was added to -4 25 mL water was added to -5 13.76 mL water was added | For -1 a 0.8 + 0.8 M suspension was obtained For -2 a 1.0 M suspension was obtained For -3 a 35 mM solution was obtained For -4 a 60 mM solution was obtained For -5 a 0.2 mM solution was obtained |
| | 8:45 | All samples were vortexed till all had dissolved (Vortex VWR VV3, 4/6 intensity of shaking) | |
| | | AE-347-5 was subsequently covered with aluminium foil | |

Linked experiments

- AE-265: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O

- AE-270: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O

- AE-311: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O I

- AE-323: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O

- AE-334: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O

- AE-342: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O I

Attached file

AE-347.xlsx

sha256: a3ff071cfa95f12a60e988872688df47aff1b34413689ef6911673aef8d40aff



Unique eLabID: 20240911-fe21d59854badb717d2ba8bfa177672e7f4fb1d7
Link: <https://elab.water-splitting.org/experiments.php?mode=view&id=1349>