

AE-414: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O

Date: 2025-01-10

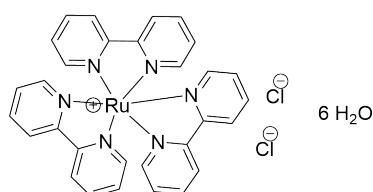
Tags: [Ru(bpy)₃]Cl₂*6 H₂O Stocksolution AE HTE

Category: HTE

Status: Done

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Reaction scheme/sample structure



[Ru(bpy)₃]Cl₂ * 6H₂O
Chemical Formula: C₃₀H₃₆Cl₂N₆O₆Ru
Molecular Weight: 748,62400

Chemical Formula: CHNaO₃
Molecular Weight: 84,00577

Na₂S₂O₈
Chemical Formula: Na₂O₈S₂
Molecular Weight: 238,09154

NaHCO₃

Na₂CO₃
Chemical Formula: CNa₂O₃
Molecular Weight: 105,98754

H₂O
water
Chemical Formula: H₂O
Molecular Weight: 18,01500

Literature/reference experiments

Literature	https://doi.org/10.1021/acscatal.6b02595
Reproduction	/
Related experiment	HTE - AE-383: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O HTE - AE-405: Preparation of stock solutions for the irradiation of [Ru(bpy)₃]Cl₂ * 6 H₂O I

Prepared solutions

Name	Chemical	Cas Number	Amount [mmol]	Mass _{theo} [mg]	Mass _{exp} [mg]	Molar mass [g/mol]	Volume(added Milli-Q water) [mL]	Optained conc.
Ru I	[Ru(bpy) ₃]Cl ₂ *6 H ₂ O	50525-27-4	1.2 μmol	0.898	0.75	748.62	25.06	40 μM
Ru II	[Ru(bpy) ₃]Cl ₂ *6 H ₂ O	50525-27-4	6.0 μmol	4.49	4.36	748.62	29.13	200 μM
Ru III	[Ru(bpy) ₃]Cl ₂ *6 H ₂ O	50525-27-4	10.0 μmol	7.49	7.51	748.62	10	1000 μM
Ox I	Sodium persulfate	7775-27-1	0.3	71.43	71.41	238.09	10	30 mM
Ox III	Sodium persulfate	7775-27-1	3.6	857.12	857.53	238.09	30	120 mM
NaHC O3 I	Sodiumhydrogen carbonate	144-55-8	7.2	604.84	605.10	84.006	10	0.72 M
NaHC O3 II	Sodiumhydrogen carbonate	144-55-8	30	2520.2	2520.29	84.006	30	1 M

NaHC O3 II- B	Sodiumhydrogen carbonate	144-55-8	10	840.07	840.32	84.006	10	1 M
NaHC O3 III	Sodiumhydrogen carbonate	144-55-8	0.5	42.00	42.02	84.006	10	0.05 M
Na2C O3 I	Sodium carbonate (anhydrous)	497-19-8	25	2649.7	2650.68	105.988	25	1 M
Na2C O3 II	Sodium carbonate (anhydrous)	497-19-8	3	317.96	317.87	105.988	10	0.3 M
Na2C O3 III	Sodium carbonate (anhydrous)	497-19-8	0.5	52.99	53.17	105.988	10	0.05 M

Procedure/observations

Date	Time	Step	Observations
13.01	9:20	Each chemical, besides for NaHCO ₃ II-B, was weighed in a saperate 15 or 50 mL snap-on cap vial, depending on the final volume.	
	9:45	To each vial Milli-Q water (see Prepared solutions table) was added using a 2 figure scale.	
	10:15	All samples were shortly vortexted to obtain/ensure a homogeneous solution (Vortex VWR VV3, 4/6 intensity of shaking)	
	10:25	The solutions were transffered into Chem Speed Vials	
17.01	9:55	NaHCO ₃ II-B was weighed in a 15 mL snap-on cap vial	
	10:02	To the vial Milli-Q water (10 mL) was added using a 2 figure scale	
	10:03	The sample was shortly vortexted to obtain a homogeneous solution (Vortex VWR VV3, 4/6 intensity of shaking)	

Linked experiments

- AE-265: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- AE-270: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- AE-311: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$ I
- AE-323: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- AE-334: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- AE-342: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$ I
- HTE - AE-365: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-368: Preparation of stock solutions of $[\text{Ru}(\text{pby})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-369: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-372: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-380: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$ I
- HTE - AE-383: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-395: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$
- HTE - AE-405: Preparation of stock solutions for the irradiation of $[\text{Ru}(\text{bpy})_3]\text{Cl}_2 \cdot 6 \text{ H}_2\text{O}$ I

Attached file

AE-41x-HTE.xlsx
sha256: f90f4dbf4280b7a10597caf5f4168534c72d5eac4292aebace8ea0e25c2b59f0



Unique eLabID: 20250110-4bcff7a55d8d66da545651f21e45e2e3c00b5b99
Link: <https://elab.water-splitting.org/experiments.php?mode=view&id=1624>