

Demonstration of the Oscillation of the
Malic Acid-Bromate-System

Alle 2x Xiv

Following solutions were used:
as solvent: aqua. dest.

8 N	H ₂ SO ₄	204 g ca. 96% H ₂ SO ₄ /500 ml
0,3 M	KBrO ₃	25 g KBrO ₃ /500 ml
4 M	Malic acid	134 g DL Malic acid/250 ml
0,1 M	MnSO ₄	1,69 g Mn SO ₄ .H ₂ O/100ml
0,025 M	ferroin-solution	commercial preparate (= Tri-1,10-phenanthroline ferrous sulfat)

Oscillation Test

In a 250 ml volumetric ~~flask~~^{sto} flask

50 ml H₂SO₄-solution

50 ml KBrO₃-solution

30 ml malic acid solution

Mix with glass rod and add

1,5 ml MnSO₄-solution

Mix

The system begins to oscillate.

1-2 minutes after addition of MnSO₄

1 ml ferroin-solution add to the mixture, short mix.

The color changes quickly from red to blue and from blue to red.

After 20 minutes the oscillation can once more^b stimulated through addition of

50 ml KBrO₃-solution

Then the system oscillates up to 30 minutes.