



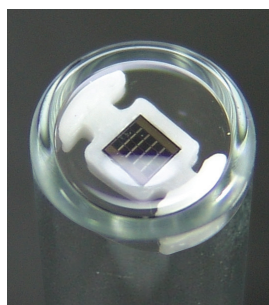
Small
Photoelectronic
Electro-
Chemical
Synthesizers

SPECS
by OWiC
TECHNOLOGIES



NEW! OWiC SPECS Vials for “Light-Powered” Electrochemistry

SPECS are *THE* way to do electrochemistry at scale. No more wires and racks of electronics. All you need is light. You can run hundreds of reactions in parallel, dramatically speeding up electrosynthesis for drug discovery.



SPECS are tiny photoelectronic devices installed in glass vials. Each SPECS vial uses the light emitted from a Lumidox®II LED array and converts it into electricity inside your sample, creating an electrochemical reaction. SPECS vials make electrochemical synthesis:

- as easy as photochemistry
- highly parallelizable
- fit seamlessly into HTE protocols

Each **SPECS device** is held in place with a press-fit holder (patent pending) to center it, suspend it above the bottom surface of the vial, and protect it from stir bars. The holder is made from chemically resistant polypropylene with no adhesives.

SPECS Vials are available in these sizes:

- 1mL (8 x 30mm) glass vials in a 96-position format
- 4mL (15 x 45mm, 1 dram) glass vials in a 24-position format

Use **SPECS Vials** in combination with **Para-dox® Reaction Blocks** and **Lumidox®II LED arrays**.



1mL OWiC SPECS Vials

1mL (8 x 30mm) Glass Vials with pre-installed OWiC SPECS

When used with a 96-position Para-dox® Reactor and Lumidox® LED array, production rates > 3 umol/hr/insert are possible

1mL SPECS Vials are delivered in 96-position racks for easy loading into Para-dox® Reactors. Loading time is literally 5 seconds.

SPECS size: 2mm x 2mm x 0.5mm

Electrodes: Platinum

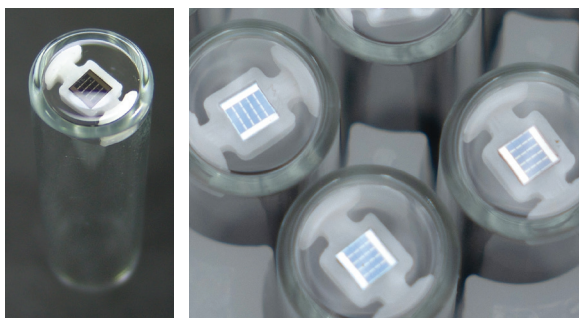
Holder: 3D printed polypropylene

Current: 20uA per sun of illumination
(1 sun = 1mW/sq mm)

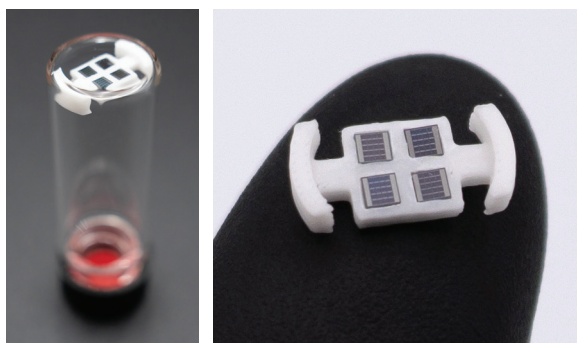
Maximum output voltage: 8 V

Mixing: Compatible with stir bars, orbital shakers, etc.

Usage: Intended for single use for maximum reliability



Catalog No.	Description
SPEC96	1mL (8 x 30mm) Glass Vials with pre-installed SPECS



4mL OWiC SPECS Vials

4mL (15 x 45mm, 1 dram) Glass Vials with pre-installed OWiC SPECS

When used with a 24-position Para-dox Reactor and Lumidox LED array, production rates > 10 $\mu\text{mol/hr/insert}$ are possible

SPECS are held in place with a press-fit holder (patent pending) to center them, suspend it above the bottom surface of the vial, and protect them from stir bars. The holder is made from chemically resistant polypropylene with no adhesives.

4mL SPECS Vials are delivered in 24 position racks.

Size: Four 2mm x 2mm x 0.5mm SPECS

Electrodes: Platinum

Holder: 3D printed polypropylene

Current: 100 μA per sun of illumination

(1 sun = 1mW/sq mm)

Maximum output voltage: 8 V

Mixing: Compatible with stir bars, orbital shakers, etc.

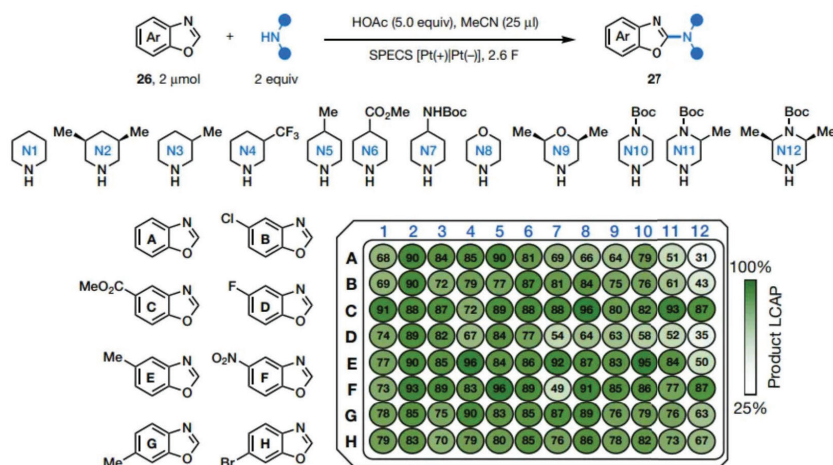
Usage: Intended for single use for maximum reliability

Catalog No.	Description
SPEC24	4mL (15 x 45mm, 1 dram) Glass Vials with pre-installed SPECS

Library Synthesis

(Fig 3c in Nature 2025)

A library of medicinally relevant heterocycles using the electrochemical dehydrogenate C–H amination of benzoxazoles previously developed by Ackermann and colleagues. This reaction yields 2-aminobenzoxazoles, a structural unit found in numerous biologically active compounds.



Reagent Compatibility

SPECS devices were exposed to various acids and bases for 1 or 20 hours, then washed and tested via the standard TMB assay. Devices remained functional after treatment with TFA, HBF_4 , and KOH, but are rapidly degraded by hydrofluoric acid sources.

Entry	Reagent	Working devices after:	
		1 h	20 h
1	20% TFA in H_2O	2/2	2/2
2	20% HBF_4 in H_2O	2/2	2/2
3	4M HCl in dioxane	2/2	2/2
4	20% KOH in H_2O	2/2	2/2
5	1M $t\text{BuOLi}$ in THF	2/2	2/2
6	1M TBAOH in MeOH	2/2	2/2
7	1M TBAF in THF	2/2	2/2
8	KHF_2 solution in H_2O (sat.)	0/2	0/2
9	70% HF in pyridine	0/2	0/2
10	$\text{NEt}_3 \cdot 3\text{HF}$ (neat)	2/2	0/2

OWiC SPECS have been detailed in a landmark paper by Górski et al. in Nature 2025 that details reactions and reagents that are possible with SPECS. For full details please see the Nature article: <https://www.nature.com/articles/s41586-024-08373-1>