

VACUUM FORMING 101

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INTRO

1960's Mattel Vacuum Former Toy maker used by modellers for replacement of clunky thick cloudy canopies from Aurora, Revell, Airfix plastic models. Very small platform.

1990's Affordable dental vacuum forming machines primarily used by dentist. Introduced to modellers by MicroMark. \$130. Squadron and others offered thermoforming plastic in sheets of clear and Opaque plastic.

Modellers started using the dental vacuum forming machines to replace or duplicate primarily canopies. Other small parts can be duplicated as well.

PRO clarity and thinness.

CON faithfully duplicating details such as frameworks compromised.

If you've decided to add Vacuum Forming to your modelling tools these are the things to address:

1. You need a buck to vacuum form
 - a. Making the form itself
 - i. CASTING with silicone rubber molds and resin
 1. Rubber Mold : Smooth-On, Nasubi, Let's Resin
 2. Casting Resin: Smooth-ON, Easy Cast Epoxy Resin
 3. Considerations: Size, bubbles, and expense
 - ii. CARVING
 1. Wood
 2. Skill
 3. Symmetry
 - iii. Test fit the buck onto the model
 - iv. Using ORIGINAL CANOPY / Item
 1. Major concerns
 - a. FILL Canopy / Item needs to be filled to prevent collapsing when forming
 - i. DURHAM's Water Putty (Durock)
 - ii. Gypsum (Plaster of Paris – Dental Plaster)

- b. SIZE Formed item will be larger than ORIGINAL due to thickness of thermoforming plastic
- c. DETAIL FIDELITY Details such as framing will not be as crisp as ORIGINAL
 - i. May improve fidelity by raising the buck
 - ii. Increases vacuum
 - 1. Coat Buck with cornstarch
 - 2. Cover holes in platen with ball bearings
 - 3. Note it will be harder to remove from buck

b. Mounting the Buck




- i. Make the base as flat as possible
- ii. Include off ramps from item and base to ease removal
 - 1. Sculpy, (275° @ 15 min per ¼")
 - 2. Cernit, (265° @ 15 min per ¼")
 - 3. Clay - ?? heat tolerance

2. EQUIPMENT / MATERIALS

i. DENTAL FORMING MACHINE

- 1. Amazon, eBay, Micro Mark, Green Stuff World, etc.

Amazon

	<p>Laboratory Dental Vacuum Forming Molding 110V Machine Lab Maquina Ferulas dentQ</p> <p>4.5 ★★★★★ (192)</p> <p>50+ bought in past month</p> <p>\$98⁹⁹ Typical: \$403.99</p> <p>✓prime Tomorrow</p> <p>FREE delivery Tomorrow, Mar 26</p> <p>Only 20 left in stock - order soon.</p> <p>Add to cart</p> <p>More Buying Choices</p> <p>\$94.04 (6 used & new offers)</p>
	<p>Vacuum Forming Machine Power Former Heat Molding Tool w/Steel Balls Lab Equipment</p> <p>4.6 ★★★★★ (191)</p> <p>\$119⁹⁹ (\$119.99/count) List: \$425.99</p> <p>FREE delivery Tue, Mar 31 for Prime members</p> <p>Add to cart</p>
<p>More results</p>	
	<p>Gekufa Dental Vacuum Forming Machine 110V Molding Machine Lab with 15 Thermoforming Plastic Sheets 1.5MM</p> <p>4.2 ★★★★★ (75)</p> <p>\$125⁹⁹</p> <p>You pay \$119.69 with coupon</p> <p>✓prime Tomorrow</p> <p>FREE delivery Tomorrow, Mar 26</p> <p>Add to cart</p>

eBAY



Dental Vacuum Forming Former Machine Heat Thermoforming/Dent...

Brand New

\$110.87

dr.baistra (18,849) 100%

Free delivery

Save up to 7% when you buy more



Dental Vacuum Molding Forming Machine Former Heat Thermoformi...

Brand New

\$106.25

ktnbusiness (1,978) 98.5%

Free delivery



Dental Vacuum Forming Molding Machine Heat Thermoforming Form...

Brand New

\$110.87

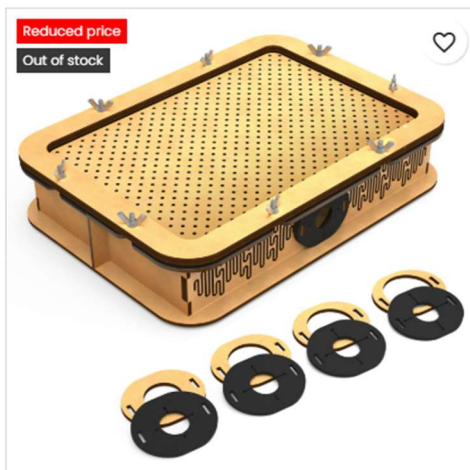
allguest (14,236) 100%

97 sold

Free delivery

Save up to 7% when you buy more

Green Stuff World



Vacuum Forming Machine A4

Reference 8435646536576ES

Rating ★★★★★ Read reviews (1)

Hobby Vacuum Forming Machine | Vacuum former

~~\$33.02~~ **\$29.72** Save 10%

Quantity

Add to cart

Out of stock

100% secure payments

PayPal Pay Later G Pay

Share f t @



HOT AIR GUN 450W

Reference 8435646521442ES

Hot Air Gun for Crafts | Heat gun



~~\$24.40~~ **\$20.74** Save 15%

Quantity

Add to cart


ii. THERMOFORMING MATERIALS

Ideally the material will be either copolyester, PETG, or Thermoart in 1.0mm or 0.75mm

1. Amazon “dental thermoforming materials”

AMAZON ACIN: B08VDCJJ8P

Purchased Oct 2024



20 Sheets 1.0MM Dental Hard Splint, Thermoforming Materials for Vacuum Forming Machine 5"x 5"

4.7 ★★★★★ (162)
100+ bought in past month


\$16¹³ (\$0.81/count)

✓ **prime Tomorrow**
FREE delivery **Tomorrow, Mar 26**

Add to cart

More Buying Choices
\$13.71 (2 used & new offers)

Previously viewed



Dental Vacuum Forming Sheets Hard Crystal 0.75mm, 5pcs Dental Lab Splint Thermoforming Materials Square 5" x 5", Sold by JMU

4.5 ★★★★★ (129)

\$12⁹⁹ (\$2.60/count) List: \$13.99


✓ **prime Tomorrow**
FREE delivery **Tomorrow, Mar 26**

Small Business

Add to cart

AMAZON ACIN: B08VDCCZ98P

2. eBay “dental thermoforming materials”



Hard Plate 0.3mm

10Pcs Dental Hard Splint Thermoforming Material For Vacuum Forming Plate 0.3mm
Brand New

\$8.54 ~~\$8.99~~

or Best Offer

Free delivery

Located in United States

Free returns

104 sold

3. Green Stuff World THERMOART VACUUM Transparent



ThermoArt Vacuum Transparent 200x300mm 0.75mm (S)

Reference 8435646536354ES

Rating ☆☆☆☆

Cosplay ThermoArt Vacuum Transparent | Clear thermoplastic material for vacuum forming and modeling of Cosplay costumes and props

	Flexibility	Cold Forming	Elasticity	Cutting	Warm Thermoforming	Dremel Sanding	Hand Sanding	Hardness
THERMO ART THERMOPLASTIC	3	3	3	5	9	8	9	9
THERMO ART THERMOPLASTIC SMOOTH	2	3	3	5	10	8	9	10
THERMO ART THERMOPLASTIC TRANSPARENT	3	2	2	5	10	7	3	8

~~\$4.58~~ **\$3.89** Save 15%

Note regarding Thermoplastics

Adam Savages favorite thermoform plastic sizes

Dental

Inches	mm	mm
0.010	0.254	
0.020	0.508	
0.030	0.762	0.75
0.040	1.016	1.00
0.060	1.524	

3. VACUUM FORMING PROCESS

- a. Arrange buck on platen
- b. Load thermoforming plastic into holder
- c. Turn HEAT on
- d. Raise Holder to one detent below heating element
 - i. Watch plastic heat up and droop
 - 1. 1 to 1.5" max
 - ii. Turn off HEAT while starting vacuum (MODEL)
 - iii. DO NOT dwell with vacuum- will suck material into platen
 - iv. Turn HEAT back on for repeat operations

4. ACTUAL FORMING AFTER BUCK IS PREPARED

- a. TEST!
 - i. IF flawless declare DONE!
 - ii. IF not Flawless
 - 1. Adjust / repair buck as needed
 - 2. Consider Mold Release
 - a. AIRID
 - b. Mineral Oil
 - iii. REPEAT a. Until satisfied with formed item

MAIN ISSUES

SAFETY

HIGH TEMPERATURES

TOXIC MATERIALS

ATTENTION WHILE VAVUUM FORMING

LOGISTICS

CARE & MAINTENACE OF MACHINE

SHELF LIFE OF MATERIALS

SORCES FOR THERMOFORM PLASTICS

RELEASE OF FORED ITEMS OFF YOUR BUCK

REFERENCES

YOUTUBE ADAM SAVAGE

[Adam Savage's Favorite Tools: Great Budget Vacuum Former!](#)

[Adam Savage's Guide to Vacuum Forming!](#)

Adam SAVAGE – Wikipedia

Adam Whitney Savage is an American special effects expert and educational video presenter. He's best known for co-hosting the Discovery Channel shows *MythBusters* and *Unchained Reaction* with Jamie Hyneman. Savage has also worked on feature films like *Star Wars: Episode II – Attack of the Clones*, *The Matrix Reloaded*, and *Galaxy Quest*. He's built a variety of creations, including sculptures, futuristic weapons, and dancing vegetables.

Adam Savage worked at Industrial Light & Magic Company later spun off his own special effects company.