The Use of CopyFlex Food-Grade Silicone Rubber for Making Impressions of Archaeological Objects

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CopyFlex

- Food grade silicone rubber for mold making
- RTV silicone rubber
  - organopolysiloxane mixture
- Low viscosity

Image: Ancient Methone Archaeological Project
Working Properties

- Easy mixing ratio (1:1)
- Cures in 4-5 hours at 70°F
- Described as “non-hazardous”
  - low toxicity & low health hazard
- Reproduces very fine details
- Low cost: 1lb kit is $25-more you buy, cheaper it is
Staining tests/Barriers

- Manufacturer doesn’t mention requiring porous surfaces to be sealed
  - Based on discussions in literature and past experience using RTV silicone rubber can leave stains—silicone oil residue
- Tests would also show how CopyFlex interacted with surface of a porous ceramic—did it pull up the substrate when removed?
Before applying barrier/CopyFlex

After applying CopyFlex

After applying barrier layer

After trying to remove barrier layer with acetone
Case Study: Ceramic Figurine Mold

- Ceramic mold of female face for figurine
- Found at site of ancient Methone (northern Greece) during a survey
- Likely from Archaic period- 6th c. BC
- Very rare find- archaeologists wanted impression to see face
● Surface of mold cleaned mechanically to remove soil/accretions
● Surface sealed with barrier-5% B-48N (2 coats)
Oddy Testing

- Undertaken to see if molding material can be stored with artifacts
- Two tests conducted- off-gassing and direct contact
- Two different protocols used- Getty Conservation Institute (modified version) and Autry Center -protocols on AIC Wiki
- Tested:
  - Part A & B separately
  - 5 and 18 hours after mixing
  - 3 months after curing
Oddy Testing Results-modified GCI Protocol

- Parts A & B-passed
- After 5 hours of mixing (fully cured)
  - Cu corroded-contact
- After 18 hours of mixing
  - Cu corroded-contact
- Trying to figure out what is causing the corrosion of Cu
Oddy Testing Results - Autry Protocol

- CopyFlex brought from field-tested 3 months after curing
  - Passed both off-gassing and contact
Future Work

- Results show no off-gassing that could impact artifacts so can be stored together
  - Due to contact test results, artifact and molding material should not be in contact with each other in storage bag/container soon after silicone cures
- Looking to conduct further contact tests after different post-curing times
  - Also want to see if test protocol is affecting results
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Since CopyFlex is food grade silicone, you can also use it to make candy versions of your artifacts!