



Epoxy Rock Repairs

Jim McAlister
The Georgia Aquarium Inc.


SCUBAPRO

REPAIRING UNDERWATER ARTIFICIAL ROCKWORK

- Determining which product to use
- Mixing the epoxy
- Preparing the surface
- Placing the patch
- Finishing the patch



ROCKWORK = REPAIR



TYPES OF MATERIALS



I Polled our ADPA Group and the
Overwhelming Answer was:

SPLASH ZONE or Z SPAR

- This is 20 year old epoxy technology.
- The mixing process is very messy.
- The product is not moldable or shapeable.
- There has to be something better out there!

BESIDES, IT'S UGLY!!!



Epoxy Product Testing



SALT WATER TEST TANK



- UNDERWATER CEMENT
- SPLASH ZONE WANABEES
- TWO PART ROLL EPOXY
 - METAL
 - CONCRETE
- TWO PART EPOXY WITH THICKENER
- LET CURE IN AIR
- LET CURE UNDERWATER
- ADDED PIGMENTS
 - DIFFERENT COLORS
 - ACRYLIC PAINT
 - FLOOR DYES
 - POWDERED GRAPHITE
- FEATHERED THE EDGES
- ROUNDED OUT THE EDGES
- MADE DIFFERENT SHAPES



NEVER use this Splash Zone “substitute”



THE WINNING TEAM OF PRODUCTS



- **ALL FIX** Two Part Epoxy Putty
 - By Cir-Cut
- **TINTS ALL** Lamp Black Tinting Dye
 - By Sheffield
- **WEST SYSTEM 423** Graphite Powder
 - By West Marine



CLEAR WINNER



- Mixes easily without a mess
- Cures relatively fast in water, even in cold water
- Adheres well to most surfaces
- Can be dyed to match rockwork
- Can be easily shaped, textured, and sculpted
- Dye “wash out” from patch is kept to a minimum
- Combination of wet and dry dyes allow for more color absorption in patch



Mixing the Epoxy



Mix Parts A and B Minimum 5 Minutes

START WITH EQUAL PARTS



KNEAD THE PARTS TOGETHER



BEGIN THE COLORING PROCESS

ADDING GRAPHITE POWDER



- Flatten Mixture to $\frac{1}{4}$ Inch
- Press Both Sides Into Powder
- Knead Until Uniform
- Repeat up to 4 Times



ADDING LIQUID TINT



- Flatten Mixture to $\frac{1}{4}$ Inch
- Add Liquid Tint Liberally to One Side of the Mixture
- Fold Over Then Begin to Knead Until Mixture Looks Uniform in Color
- Repeat up to Four Times

PREPARING THE SURFACE

- Chip and Scrape Unstable Material Away
- Clean Good Rock Around Spot with Brush



PLACING THE PATCH

APPLY A BALL OF EPOXY TO THE CENTER OF BAD AREA



PRESS DOWN FIRMLY TO FORCE WATER OUT FROM BEHIND PATCH AND SPREAD OUT THE PATCH



SHAPE THE EPOXY OVER THE AREA TO BE PATCHED



FINISHING THE PATCH



LET THE PATCH SIT FOR 5-10 MINUTES THEN BEGIN TO:



ADD TEXTURE

SCULPT DETAILS



Be Creative and Blend the Patch into the Surrounding Rockwork





With practice and a little blending...
Your patches will blend into their surroundings!

We Have Come Out of the Dark Ages and Into the 21st Century with Rock Repair

- BECOME MORE EDUCATED ABOUT EPOXY
- BE ABLE TO DO SOME COLOR MATCHING
- APPLY THE PATCH SECURELY
- BE CREATIVE TO BLEND IN THE PATCH



ANY QUESTIONS ?

