

CLONE ANY PART QUICKLY WITH



QUICK-SETTING COMPOUND

MAKES ACCURATE HARD PLASTIC REPRODUCTIONS IN 6 TO 8 MINUTES



A proven self-curing proofing compound for
checking • Surface Finish • Angles & Radii •
Die Cavities • Dimensions • Threads & Contours

Also Ideal

FOR QUICK & ACCURATE FABRICATION OF JIGS, FIXTURES, & TOOLING

APPLICATION AND INSTRUCTIONS - CATALOG F-206



Made in U.S.A.

facsimile[®]

QUICK-SETTING COMPOUND

The finest plastic formula made especially for the duplication of surface roughness. Thread and contoured forms easily transferred; sampling die and mold cavities made easy.

• Quick Setting • Self Curing • Easy to Mix • Sets Up Hard like Metal • Hard Sharp Edges • Higher Optical Properties • Multitudes of Other Uses. Excellent for use as Fixturing Compound.

All ranges of surface finish can be checked quickly and accurately.

Facsimile is used all over the world by small as well as large firms. Almost all major airlines use it to check aircraft engines and parts - nuclear, aerospace, medical components and automotive hardware; Military inspection usage is extensive.

Introductory Offer! KIT #16000

Here is a complete introductory one pound kit that provides you with a new material that can pay for itself in one application! A new concept in plastic, it is easy to mix, self-curing, quick-setting, and extremely accurate and stable.



Kit #16000

CONTENTS:

#16000 1 Lb. Introductory Kit

One Pound (Tr.)
FACSIMILE POWDER, 1 lb. Troy
1 - 120cc FACSIMILE liquid
1 - 60cc Flexbar Release Agent
1 - Powder scoop
1 - Molding clay
10 - Disposable cups (graduated)
10 - Wooden spatulas
1 - 1 oz. polypropylene measuring cup
Applications Manual

FACSIMILE IS ALSO AVAILABLE IN LARGER "ECONOMY" KITS:

CONTENTS: 3 LB. KIT #16003

3 pounds (Tr.) FACSIMILE powder
1 pint FACSIMILE liquid
1 - 60cc Flexbar release agent
1 - powder scoop
1 - molding clay
20 - disposable cups (graduated)
20 - wooden spatula
1 - 6 oz. polypropylene measuring cup
Applications manual



Kit #16003

CONTENTS: 25 LB. KIT #16025 (not shown)

25 pounds (Tr.) FACSIMILE powder
1 gallon FACSIMILE liquid
1 - 60cc Flexbar release agent
1 - powder scoop
1 - large bar molding clay
100 - disposable cups (graduated)
150 - wooden spatula
10 - 6 oz. polypropylene measuring cups
Applications manual

Also available: Refills for Facsimile Kits - see page 16.

AN INTRODUCTION TO *facsimile*[®]

If you are already using “Facsimile”, and if you are already expert in its use, you may still want to read what follows here, because we have added several hints & techniques not contained in previous publications. Using Facsimile requires the technicians to make their own mixture, so that while the process is technique dependent, it is nevertheless quite easy to handle. Facsimile clones into “Hard Copies” of existing parts, molds, tooling dies, hubs, thread forms and the like. It excels in faithful and exacting replication of surface finish/surface texture, as well as radii and angles. It can clone these in areas of the test piece not readily accessible to conventional probes and measuring devices.

In response to numerous requests for a sister product to Facsimile-one which would set up as quickly as Facsimile, but in the form of pliable rubber, we set out to innovate such a system. After careful experimentation, we developed a metrology-grade compound which we named “Reprorubber”. It has been used widely, with great success, and it is supplied in two viscosities:

1. REPRORUBBER THIN POUR - a free flowing, low viscosity system, which sets up like medium durometer rubber.

2. REPRORUBBER PUTTY - sets up hard like the eraser of a pencil.

Differing from the mundane RTV preparations and a variety of dental materials, nothing evaporates during the cure cycle or thereafter, which results in an extremely accurate transfer-proofing compound.

Following Facsimile and Fine Proofing Alloy (see page 13 of this booklet), Reprorubber offers the user an alternative problem-solving material. For further details on Reprorubber, see pages 14 and 15 of this booklet.

FACSIMILE: Instructions for Use:

Preparing the original prior to applying the Facsimile mixture (obtaining separation).

Cover the surface by applying a generous amount of Flexbar Release Agent as supplied with each kit. Use a camel-hair brush, swab, or lint-free cloth. Dam off the original with molding clay, making areas not wanted and undercuts tool. Use release agent on corners, and around bends just in case the applied mixture runs over the edge.

RELEASE AGENT:

When the substrate (specimen) is metal:

- If the metal is “Bone Dry” the Facsimile mixture will cure and bond onto the metal. This may be advantageous in certain applications, such as fixturing or tooling usage.
- If the metal has Release Agent covering the entire area, the cured Facsimile will release from the original.

OTHER RELEASE AGENTS:

Since the chemical composition and metallurgical structure of metals varies a good deal, users of Facsimile often use other substances which work best on the particular substrate. E.G. Petroleum Jelly (Vaseline), - light grease - 3 in 1 oil, vegetable oil - soap solution - transmission fluid - lard - spray-on furniture polish (Pledge) - Polymer car finish (Armor All) etc.

PUTTING IT IN THE FREEZER: If by accident the replica does not separate from the mold, put it in the freezer and separation will occur.

SPECIAL RELEASE AGENT

For difficult materials, try Epoxy Parfilm, Flexbar No. 16136. This is a high-tech Release Agent which works even better than silicones. Things to avoid: Oils with solvents in them, or commercial release coating which would mar the surface finish of the cured replica, (i.e.) if identical surface replication is vital to your testing. For encapsulation, use rings or boxes (slice off section from metal) or even better, hollow plastic tubes, or, you can dam off the periphery with clay or oiled metal plates held together with magnets, or framed using “Crazy Glue”.

SEPARATION FROM PLASTIC PARTS:

The Facsimile mixture when placed into or onto a plastic substrate will:

(Type A) Separate itself easily from plastic even without Release Agent.

(Type B) Bond itself to the plastic.

Non-stick plastics (Type A) include: Polyethylene, Nylon, Teflon, Delrin and Rubber. If you are not certain, use a scrap piece and experiment using only a small glob of Facsimile mixture.

Plastics which will stick (Type B) include: Acrylics, Acetates, Vinyls, PVCS, Styrenes, Plexiglass, ABS, Fiberglass, CFC's and some others. However, There is a way out! To easily separate replicas from plastic parts which normally stick, use Epoxy Parfilm, Flexbar Order No. 16136 (18 ounce spray can)(see page 13).

MIXING FACSIMILE:

The viscosity of Facsimile is adjustable; the more liquid used, the thinner the mixture and vice versa. There is not a fixed ratio of powder to liquid and this depends a good deal upon the application. However, the more powder that can be tolerated in the mixture, the more accurate is the dimensional transfer. If you are a first-time user, it is advisable to experiment with a few different ratios.

MAKING THE MIXTURE:

1. Scoop powder into one graduated cup.
2. Pour liquid into a second cup.
3. Pour the powder into the liquid.
4. Use the wooden spatula and slowly stir for about 60 seconds. If it looks like the mixture is too thick, you still have time to add a bit more of liquid and re-stir. If too thin, you can add more powder and re-stir.
5. (Optional) Turning the cup 60° and rotating the cup in the hands for 10 seconds or so will remove air which may be trapped in the mixture. This will tend to eliminate "Voids" within the cured replica.
6. Examples of Ratios:

3 to 1

This means, for example that you put 30cc of powder in cup #1 and 10cc of liquid in cup #2. The cups supplied in each Facsimile Kit are "Graduated". Cups can be ordered separately (See back cover).

POWDER	+	LIQUID	=	RESULTING VISCOSITY
3		1	=	Thin
4		1	=	Medium
5		1	=	Thick

7. CURE TIME: AT 68°-70° (Room Temperature), in most environments, Facsimile will cure in about 10 minutes. After 6 minutes, while the replica may appear "Hard", upon touching it you will observe that is still quite warm and thereafter it cools down very rapidly. Removal when still warm will distort the geometry so wait until it is cold.

8. Increasing work time and cure time:

Many users of Facsimile cannot tolerate the short cure time. In certain situations - this is easily solved as follows: Keep the Facsimile liquid in cold place, such as a refrigerator. Curetime will be increased to 30 to 40 minutes which of course also provides more "Work Time".

DAMMING OFF FACSIMILE:

Various objects can be useful. Keep these on hand or collect them in a box.

: Modeling Clay: sheets of non-stick plastic: Plaster of Paris.

: Plastic Caps: Rubber Plugs: RTV rubber or even better Flexbar REPRORUBBER.

The REPRORUBBER "DAM" will exactly fit the configuration of the area being dammed off and it will constantly keep its shape and tolerance so that the same dam can be used over and over again to make additional replicas.

9. Applying Facsimile in Putty Form:

Use A High Powder to liquid ratio. Wait until it gets pasty while covering your hands with oil or petroleum jelly. This is so that the Facsimile putty will not stick to your hands. Pry the putty out with the wooden stick and scoop it into your oiled hands: roll it into a ball and then push it into the test piece. Press several times for it to take shape. Wait for "Full Cure" and then remove it. AVOID TOUCHING FACSIMILE MIXTURE, as follows: spread or put putty on thin plastic sheeting such as a "Baggie", poly bag or piece of wax paper then press it into or onto the test piece. Important: Do not remove plastic sheet until after the Facsimile mixture has cured fully.

10. DISSOLVING CURED FACSIMILE:

Soak in Acetone or Ethylene Dichloride

11. USING A SYRINGE:

Many types of plastic syringes are readily available including Flexbar Monoject Syringes (see page 15). The Facsimile mixture can be poured into a Polyethylene Syringe body; then insert the plunger and dispense under very controlled conditions. The cured Facsimile residue will push out easily so that the same syringe can be used over and over again.

12. HINTS FOR REMOVAL:

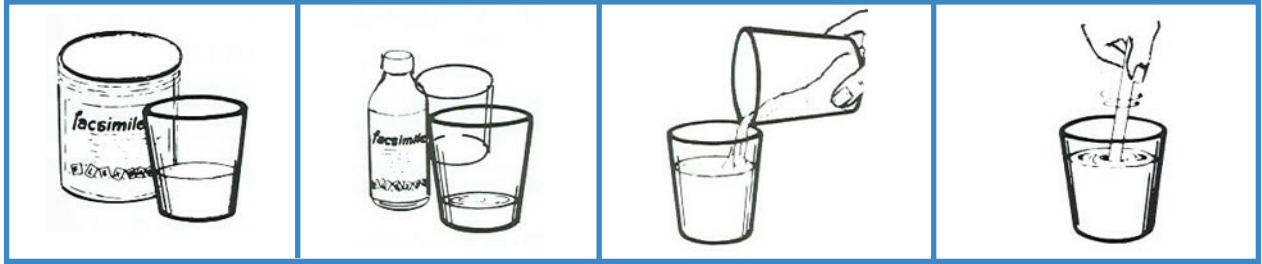
- a. Many shapes are easy to remove. Use a thin knife edge to pluck up the edge of the replica and it will pop off. Often times, rapping the set up with a wooden mallet will dislodge the specimen without harming either the original test piece or the duplicate, for more difficult configurations, sink a handle into the potted area. E.G., use a hex bolt or headed machine screw (head in always).
- b. If the original has one or more undercuts, so that there is no draft, then fill into the undercut with clay or similar material.

DIRECTIONS FOR MIXING AND POURING

ACCURATE REPRODUCTION IN MINUTES

NOTE: Temperature and humidity conditions can affect mixing ratio but you can easily achieve the best ratio with a couple of trial mixes. Record the best.

**EXAMPLE GIVEN BELOW IS ONLY FOR “THIN VISCOSITY”.
SEE PAGE 5 FOR OTHER MIX RATIOS.**



Method No. 1: FOR USE IN LIQUID STATE (where area is easily dammed off). 3:1 Ratio

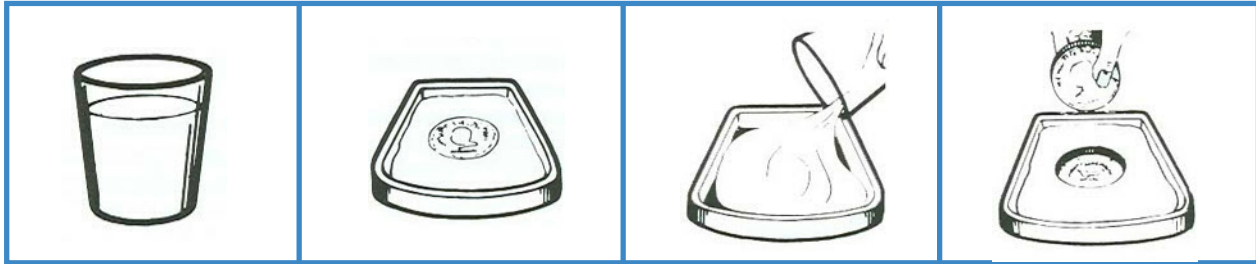
1. Pour Powder into cup (30cc).

2. Pour liquid into second cup (10cc).

3. Pour Powder into liquid.

4. Spatulate slowly for 60 seconds.

This ratio will result in a thin viscosity.



5. Wait 30 seconds for bubbles to settle.

6. Prepare area for release by using a release agent.

7. Pour over object or into cavity and let it set for 6-8 minutes at room temperature (more in cold areas).

8. Remove specimen (press out or insert knife edge to loosen and pry out).

Cured Facsimile has a density of 1.1 so that small amount goes a long way.

Our mixing cups are polyethylene or polypropylene so that residue will peel out easily; thus mixing cups are reusable. Disposable cups are also included.

#16000, one pound kit yields 20.9 cubic inches of solid (cured) material.
#16003, three pound kit yields 62 cubic inches of solid (cured) material.
#16025, twenty five pound kit yields 518 cubic inches of solid (cured) material.

facsimile[®]

QUICK-SETTING COMPOUND

Laboratory Reports

Laboratory reports on FACSIMILE specimens show surface roughness measurements of 0.1 to 2,000 microinches are exact duplicates of the material tested, measurable on surface testing instruments of both electronic and optical types.

THE USE OF RAPID CURING "FACSIMILE measure image" permits a method of duplicating roughness of areas not normally accessible to gaging and inspection instruments.

Permanent records can be kept of surface roughness of materials on objects which have been delivered.

Technical Data

A test submitted by E.I. DuPont DeNemour & Company to an independent test lab showed the following properties of "Facsimile".

	1	2	3
Diameter	0.805	0.799	0.805
Length	0.699	0.0699	0.700
Area	0.509	0.501	0.509
Breaking Load (lbs.)	7,780*	7,060*	7,200*
Compressive strength	15,280	14,090	14,140
	2	3	4
Width	0.188	0.189	0.192
Thickness	0.065	0.064	0.072
Area	0.0122	0.0121	0.0138
Ultimate Load (lbs.)	42.2	53	43.8
Ultimate Tensile (psi)	3,460	4,380	3,170

*1st deformation - sample did not break

END OF REPORT

TEMPERATURE RESISTANCE:

Under heat, Facsimile does break down which starts around 350°F. Users have bonded metals and springs using heat of up to 350° C. Thermal insulation can be increased by mixing in a normal amount of special powder e.g., rock wool.

SHRINK FACTORS:

A. Non confined - as around an air-foil section - excellent.

B. Confined casting of Facsimile. This will result in a very small amount of shrinkage. Therefore, dam off part of internal cavity with clay or pliable material. To improve close tolerance dimensional transfers:

1. Load a lot of powder into the mixture and push material into ring or form.
2. Cure (after pouring) in a pressure vessel at 15 p.s.i. A pressure cooker with an air valve will do.
3. Take a partial impression e.g. 60% of a hole diameter.

P.S. FACSIMILE, when cured, is sufficiently hard for use of a stylus following the edge of FACSIMILE template.

HARDNESS: ROCKWELL - M 90 (Comparable to an ABS Plastic)
THIS IS A STANDARD FOR PLASTICS ONLY.



USE #1 Case History

(see below for graphs)

INSTRUMENTATION - Zeiss Interference Surface Tester

TYPE OF TEST I. Flatness Check

- original being reproduced was optically flat to 3 millionths of an inch.
- curing period - approximately 30 minutes.

Results: immediate - FACSIMILE reproduction measured 3 millionths of an inch.
 3 days later - FACSIMILE reproduction measured 10 millionths of an inch.
 6 days later - FACSIMILE reproduction measured 10 millionths of an inch.

INSTRUMENTATION - Zeiss Light Section Microscope

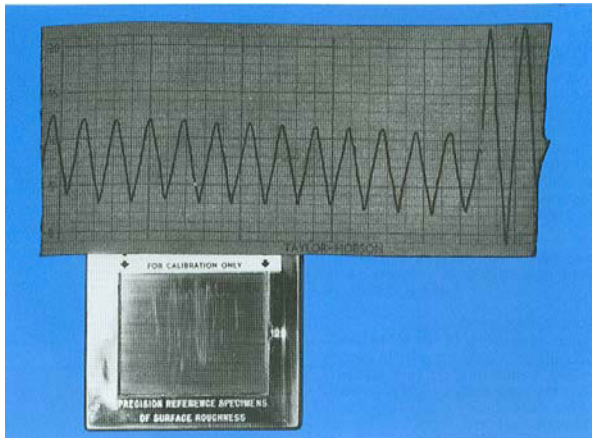
TYPE OF TEST II. Surface Roughness Test

- original being reproduced was a flaw on a 6" diameter roll which measured 160 microinches.
- curing period - due to late-in-day application, cast was left overnight.

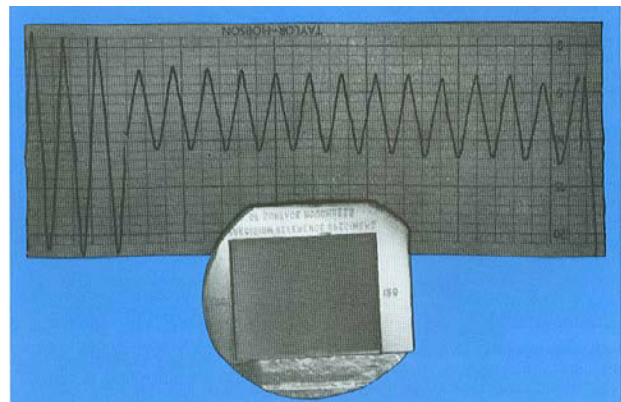
Results: FACSIMILE reproduction measured 160 microinches.

QUESTION: What are the optimum results which can be anticipated when using standard surface roughness measuring instruments on FACSIMILE reproductions?

ANSWER: **A SURFACE FINISH OF 0.1 MICROINCHES** can be checked! Higher values will also replicate accurately.



I. Talysurf recording of caliblock roughness master.

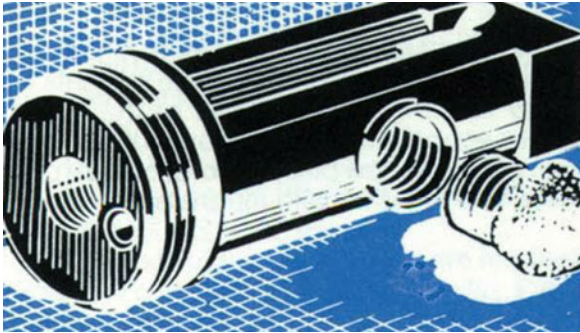


II. Talysurf recording of FACSIMILE duplicate.

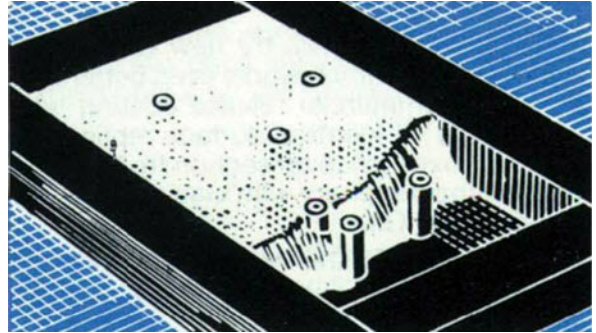
When you check surface roughness on original using stylus-type equipment, some surface damage will result from stylus and/or skid pressure but NEVER when you use FACSIMILE replica, which is identical to original.



MORE USES AND APPLICATIONS:

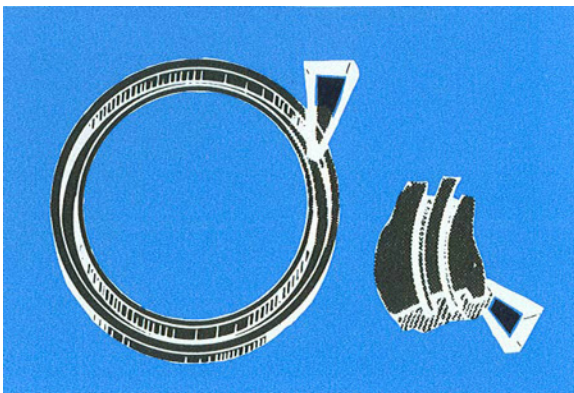
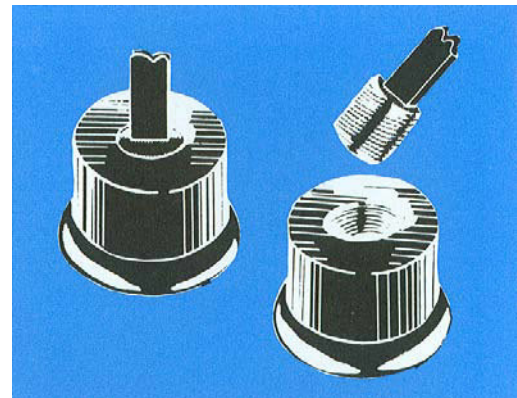


USE #2: To create a master or checking gage, just pour in Facsimile and wait 6 to 8 minutes. Parts later can be conventionally ground, machined, etc., if desired. Drawing above shows creation of a thread gage.

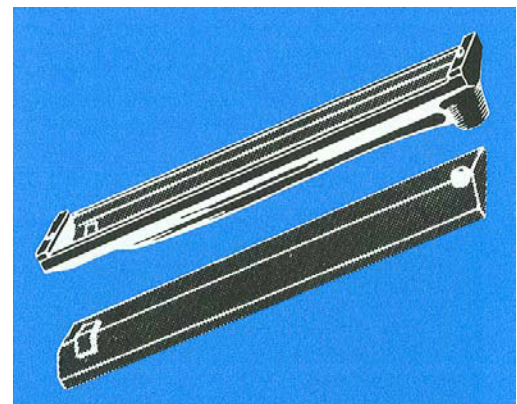


USE #3: Shown above is a quick and inexpensive method of creating a drill fixture. Just pour Facsimile around drill bushings and wait 6 to 8 minutes. Casting must be a thick section 3/8" or more. **USE MAGNETS TO HOLD PLATES.**

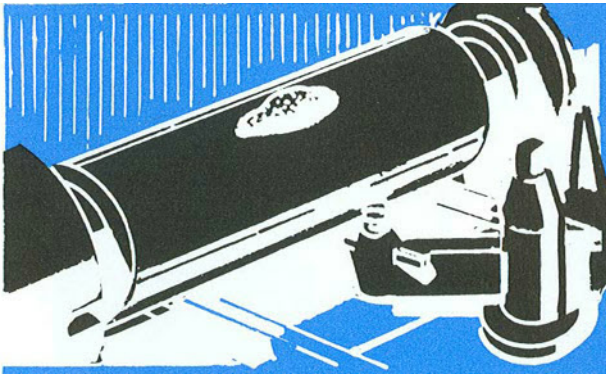
USE #4 (shown right): HIGHLY ACCURATE AND RELIABLE CASTED REPLICAS OF INTERNAL THREAD FORMS ARE NOT ONLY POSSIBLE BUT THEY ARE BEING PERFORMED DAILY BY FACSIMILE USERS THE WORLD OVER. Intricate shapes such as Butress threads and Whitworth can be taken. In use: it is suggested that only about 1/2 of the thread be casted at a time and use a wooden or metal handle for easy withdrawal of the impression. For small threads use thin sticks (round or flat).



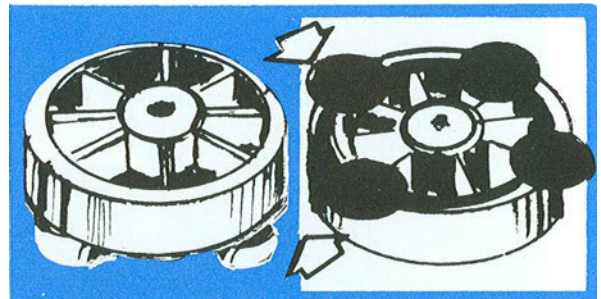
USE #5: GROOVE GAGES: e.g. such as used by "CAN MANUFACTURERS." Cast Facsimile in groove using "handle method" (first spraying release into areas of impression). After cure cycle, casting is simply moved around 360° to check geometry of the groove.



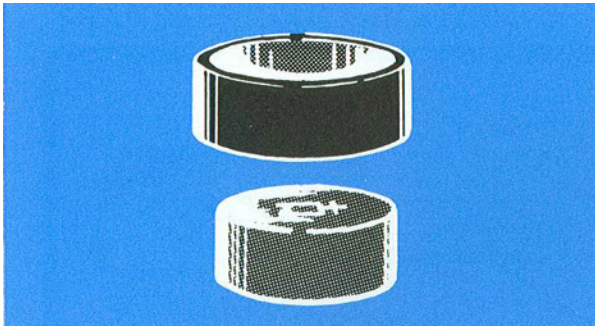
USE #6: FOR TESTING MOULDS, DIES, ETC. For small run castings of parts for prototype work. Ready to use in 8-10 minutes after pouring. Makes permanent records of surface finish, surface texture; geometry and dimension of form.



USE #7: Without removing work from the machine set-up you can create "Facsimile" test sample which can be carried away for testing. Duplicates from 0.1 to 2,000 Microinches perfectly.



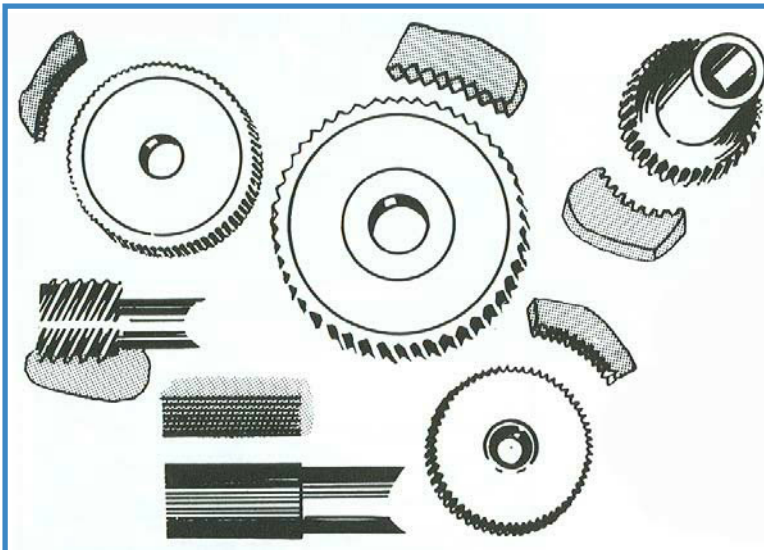
USE #8: Zero leveling pods made of Facsimile are placed under huge diameter disc shaped blanks and leveled; then discs are machined, at various stations, into steam turbine diaphragms resulting in zero machining defects. Courtesy of General Electric, Ladson, So. Carolina.



USE #9: MOUNTING METALLOGRAPHIC SPECIMENS: (for examination by microscope): Use rings as retainers and put on flat glass plate. You can now polish, lap or grind specimen with excellent results.

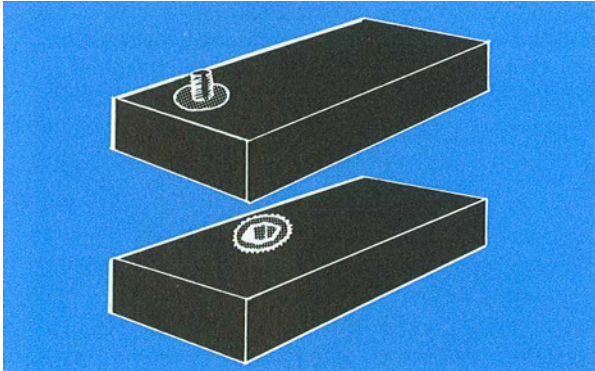


USE #10: Fills voids in castings as well as in epoxy and phenolic moulds with speed and accuracy. Areas filled can then be sanded and painted.



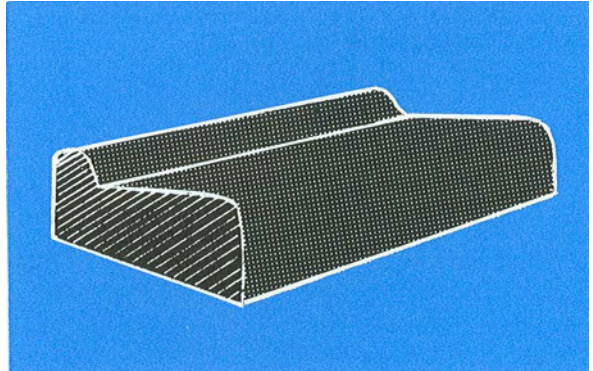
USE #11: MAKING EXACT- REPLICAS OF GEAR TEETH AND SIMILAR FORMS: (as shown) Facsimile is also a suitable vehicle for mixing in of ABRASIVE GRITS so that a "custom-made lap" results - one which fits the exact geometry of, for example, gear teeth. You now have a means for removing errors of form.

facsimile[®] USES & APPLICATIONS (continued)

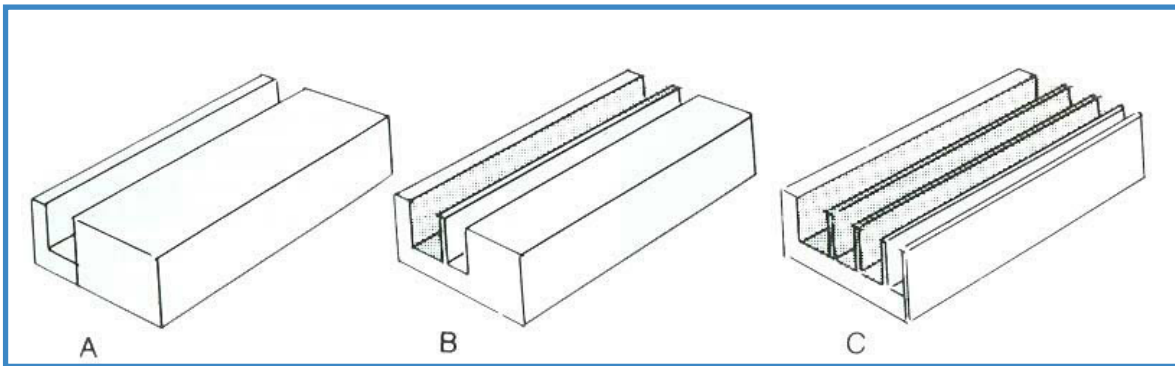


USE #12: Potting of threaded studs and groove pins in place provides high tensile strength. Use as a filler to seal set screws and socket head cap screws, etc.

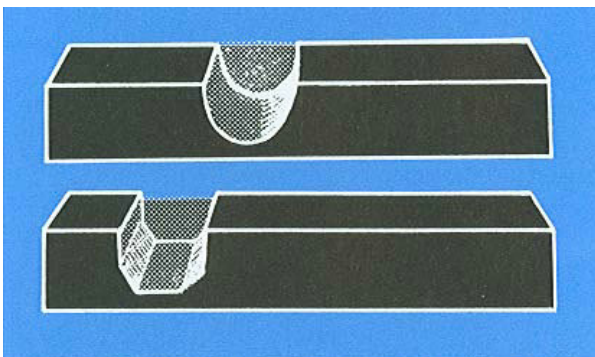
Note: FACSIMILE replicas can be checked and measured on optical comparators (shadow graphs).



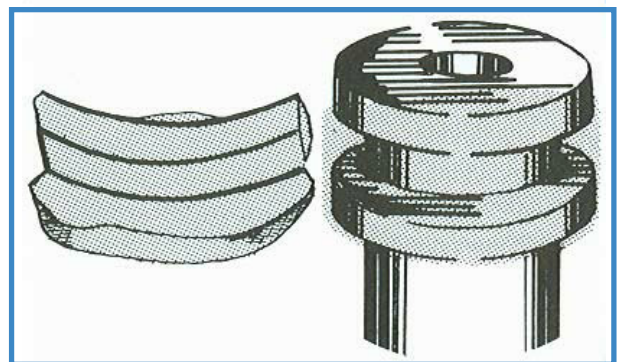
USE #13: With Facsimile (which has a high compressive strength) you can rapidly make jigs and fixtures for bending thin to medium gauges of sheet metal.



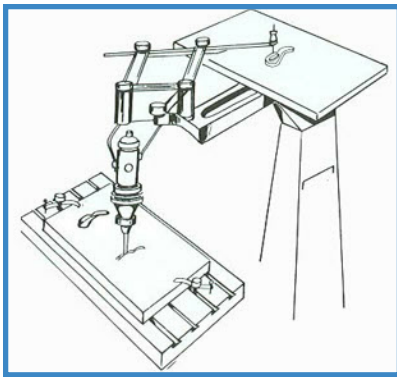
USE #14: BACK-UP MATERIAL as in GRINDING of special shapes and forms where thin walls would, otherwise, collapse. In figure above, the first groove of the honeycomb grinds and fill in as you go along. Items with walls to .0001" are practical and real when using Facsimile as the "backup." An ACETONE SOAK removes the material quickly.



USE #15: Used for checking radii and angular internal and external recesses, often in difficult to measure areas.

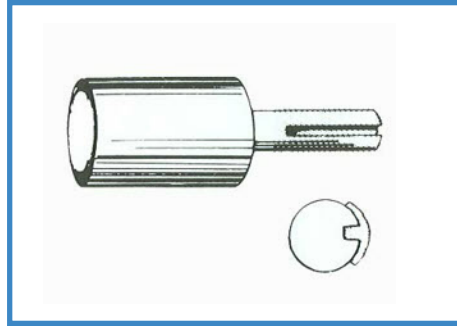


USE #16: Taking impressions of groove roots. External is shown. Internal "takes" are also possible in otherwise inaccessible locations.

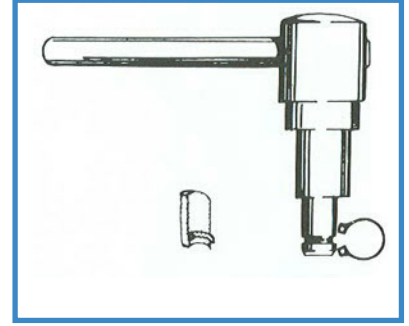


USE #17: Makes excellent patterns and templates for pantomilling, for pro-filling applications and for Kellering. Make patterns for Bridgeport hydratel or tracer lathes. Also, CNC milling.

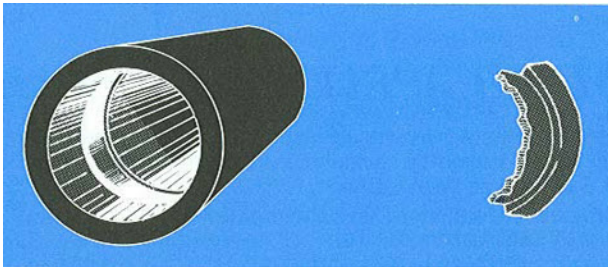
TRANSFERRING GROOVES



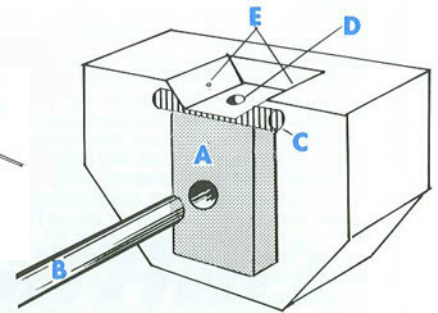
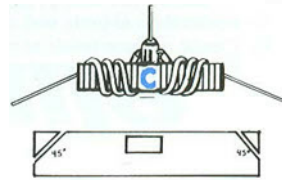
USE #18: Transfer dimensions from one location to another, e.g. A foreign-made motor shaft had a key missing. Motor was exposed by crane lift, then the Facsimile impression was made; it was then taken to the machine shop for quick and accurate fabrication.



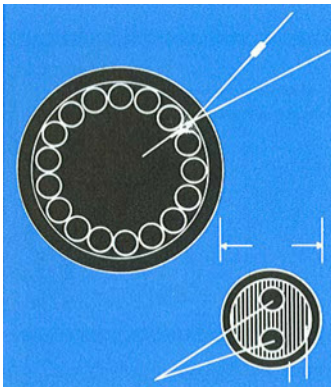
USE #19: Excellent for checking and verifying locations of "retaining-type rings"; both internal and external types.



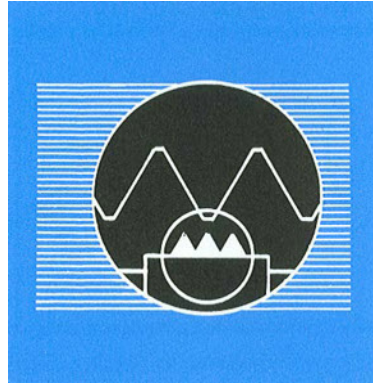
USE #20: Exact Replica of Internal Groove. Be careful to first spray release agent or light oil into entire area otherwise the Facsimile adheres to the metal and becomes difficult to remove.



USE #21: - SPECIAL FIXTURING & DRILL JIGS: Time saving factor is mainly due to
1. Casting technique with 6-8 minutes cure time is faster than machining. Retaining forms are easily put together with scrap material.
2. Facsimile when hardened is fast to machine.
3. Leave void areas for 2nd and 3rd pours of Facsimile. It sticks to itself and becomes almost homogeneous.



USE #22: In use, the technician was able to "pot" thermocouples within the ball races of special motors. Therefore, Facsimile is useful in similar applications - wherever an instrument SENSOR has to be positioned positively in a specified location.



USE #23: Optical projections of forms made with "Facsimile" are duplicates within millionths!

Application Shown: The wire-wrapped unit (shown) needs three holes, one at 90° and two at 45°. Fixture is created with holes E and D set in line on optical comparator or other means. Part C is oriented while slot A is cast (with release agent on it) so that it can then be pushed out through hole D. Machine away clearance room for rod B which then passes through slug A's hole. Form has 45° flats on bottom so that when held in that angle holes E can be drilled accurately.

NOTE:

FACSIMILE... is 100% approved for ANTICONTAMINATION and for all ATOMIC and NUCLEAR APPLICATIONS by virtue of containing within minimal traces of: All Halogens - Mercury - Sulphur - Lead - Copper/Brass - Phosphorus - Zinc - Arsenic Antimony - Aluminum - Cadmium - Tin - Bismuth or any compounds thereof.

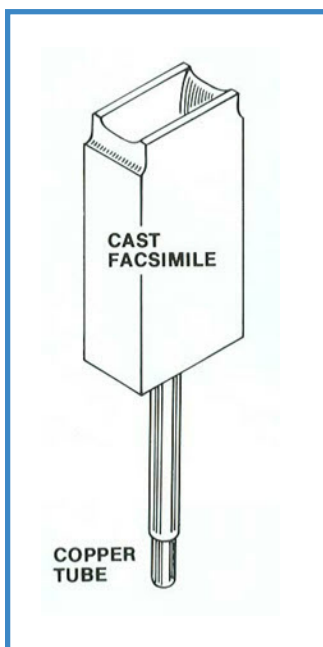
Tests performed at New York Testing Laboratories, Inc. Westbury, NY, Certificates available: New York Testing Laboratory.

SAFETY: "Material Safety Data Sheets" will also be provided, FREE, upon request for plants who require it on file.



OTHER APPLICATIONS (in brief):

24. For "Copy-Milling Machine". Master male form, cast using Facsimile serves as trace master to sink female die cavities. Courtesy of Alan Seaberg, Pres., Ram-Sag Machinery Sales Corp., West Babylon, N.Y.
25. Testing surfaces for roughness (in bottom of hole).
26. Repair holes in sand castings.
27. Temporary valve seals and valve packings.
28. Temporary and permanent repairs - from door handles to lead screw housings for machine tools (use release agent on lead screw only so that table can be traversed).
29. Make quick and secure handles for tools and tooling.
30. Make replicas of master gages (keep original and supply the replica with blueprint to vendor.)
31. Checking undercuts, O-Ring grooves and blind holes.
32. Making accurate models and repairing models.
33. Masking off areas for planting, etching, painting, Parkerizing and Chemical milling.
34. Thread-bonding adhesive. Cementing metals.
35. Checking the outside of airfoil sections.
36. Encapsulation of electrical components (potting).
37. Checking texture and markings on carbon electrodes, printing matrixes, etc.
38. Removing oxides and rust and brightening copper and brass. (Apply with release agent and then remove; area is left bright).
39. Using an appropriate rod, cast Facsimile inside cylinder wall or in proper I.D. glass tubes and make your own air piston for temporary or permanent use.
40. Criminal investigation techniques.
41. Pattern Making - Bending Jigs.
42. To hold a 6 pound fixture with 3 pods to large printing rolls for residual strain testing. (Continental Can Co.)
43. In determining "Fretting Depth" on Blade Dovetails for the CF-6-50 jet engine.
44. Checking the new JT-8B Engine.
45. Restoration of parts and antiques.
46. Check surface finish of rubber. Replica results in hard surface facsimile; then check with surface analyzer equipment. Also for soft aluminum.



FACSIMILE APPLICATION #47

This is a custom-made part for ejection of parts on a machine. (It can also be made for feeding parts). An aluminum core (for inside) was machined. Two angle irons were put together to form the rectangular outer section. Core was held in place and FACSIMILE poured into resulting cavity. Tube positioned in place was automatically bonded in by single pouring of FACSIMILE. Short run of 50 parts was made:

Courtesy of Stewart Stamping Company
Yonkers, NY

**MANY E.D.M.
SHOPS USE
FACSIMILE
FOR MAKING
DUPLICATE
ELECTRODES,
ETC.**



USE #48: Highly Accurate and reliable casted replicas of internal thread forms are not only possible but they are being performed daily by Facsimile users the world over.

**NOTE:
FACSIMILE CAN BE PLATED!
SEE YOUR LOCAL PLATER.**

NEW—SUPER RELEASE AGENT

EPOXY PARFILM ULTRA

**A NEW and Highly Effective Release Agent
for users of Facsimile "measure image".**

NON-CFC, NON-VOC Formula.



Epoxy ParFilm is the culmination of a search for a suitable release agent for epoxies.

The highly effective, very thin film obtainable from Epoxy ParFilm Release is non-melting and will not carbonize. This makes it suitable for use with exothermic cures, such as Facsimile "measure-image" replication compound.

Epoxy ParFilm offers better release than polyvinyl alcohol and wax with a much thinner film application.

Epoxy ParFilm can be applied quickly with the easily operated directional valve which is standard.

Epoxy ParFilm is non-combustible, non-toxic and non-allergenic. Contains NO CHLORINATED SOLVENTS.

Order No. 16136, Epoxy
ParFilm, 18 ounce spray

Important Notice to Users of REPRORUBBER by Flexbar:

SEPARATION OF REPRORUBBER NOW POSSIBLE WHEN CASTING REPRORUBBER FROM REPRORUBBER.

FLEXBAR FINE PROOFING ALLOY

No. 16117 - Reusable Low-Melting Alloy (finest grade).

KEYNOTE OF APPLICATIONS

Growth after casting is $\pm .0002$ " after 6 minutes. However, after 30 minutes the change is $\pm .0000$ (zero), so that this is the best time for removal and inspection. After 1 hour and up to 21 days, the change is between $\pm .0001$ " and $\pm .0002$ " on the minus side.

USES: PROOFING VIA REPLICATION OF:

*Dies—Moulds—Internal and External Thread Forms—
Texture Check—Grooves—Slots—O-Ring Grooves—
Gear Teeth—Splines—Surface Finish Replication—
Extra-Fine Fixturing—Checking Undercuts*



OTHER USES:

1. Precision holding of irregular work pieces during machining.
2. Dental-type model making.
3. Drill bushings for drill jigs.
4. Chucks for lens buffing—gem cutting.
5. Transfer templates in contour jigs.
6. Cores for electroforming.
7. Compound wax patterns—lost wax patterns.
8. Duplicating plastic, Facsimile or Plaster patterns.
9. Fusible elements in safety devices and alarms.
10. X-Ray (radio opaquing).

PHYSICAL PROPERTIES No. 16117

Melting Temperature or Range °F 117		· Latent Heat of Fusion BTU/lb.	
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No. 16117, Fine Proofing All

*Each 1 lb. cake may vary slightly in weight and will be billed according to the exact weight.

PRICE SUBJECT TO CHANGE ACCORDING TO MARKET CONDITIONS

GOING:

**Male to Female to Male or
Female to Male to Female**

Flexbar No. 16117 Fine Proofing Alloy can be used for both in conjunction with our Facsimile Measure-Image Replicating Material.

Steps: Make your first impression with No. 16117 alloy and let it cool down or accelerate cool down with water. Put oil or Release Agent on alloy replica. Dam off where necessary with plasticene or clay and mix Facsimile and pour into alloy replica.

Note: In some cases the configuration might call for reversing the procedure by taking first replica with "Facsimile" and then pouring No. 16117 alloy into Facsimile cavity. Obviously the configuration of the original would dictate which way to go.

Accordingly—you can clone or reproduce original parts for prototypes-small production runs, etc.



Also Available From **FLEXBAR**

CLONE ANY PART QUICKLY WITH

FLEXBAR **repro-rubber**®
Made in U.S.A.

METROLOGY CASTING MATERIAL

Exotic Metrology-Grade Rubber—Self-Curing in Minutes
Virtually Perfect Replica Casting of Internal and External Forms
Non-Toxic—Easy To Use—100 Times Faster Than RTV Silicones
No Release Agent is Ever Needed.
Excellent For Checking Parts With Optical Comparators!

SUPPLIED IN TWO VISCOSITIES

• THIN POUR •



Final Color - LIGHT GREEN

For internal-shape applications where a thin pour will completely fill the cavity without voids. A complete replica casting is quickly formed.

- Manipulation time is 5 minutes and cure time is 15 minutes.
- Start to finish: 20 minutes.
- Kits include graduated mixing cups, wooden spatulas and instructions.
- Use with REPRO-MIX Dispensing Gun System (see page 15).

New Trial Size Kit Now Available

Order No. 16116 - Thin Pour 130ml Trial Kit

Standard Size Kits:

Order No. 16135 - Thin Pour 380ml Kit

Order No. 16137 - Case of 10 380ml Kits

• QUICKSETTING PUTTY •



Final Color - LIGHT BLUE

Roll two equal-sized balls of catalyst putty and base putty and simply knead them together like dough. Excellent for external shapes. Simply spread over master pushing down with fingers and wait for cure 8-10 minutes. You have 3 or 4 minutes of manipulation time. Therefore 14 minutes start to finish. You can also cast internal shapes and cavities but some pressure should be applied such as a weighted object on top.

New Trial Size Kit Now Available

Order No. 16129 - 220ml Trial Quick Setting Putty Kit

Other Kits:

Order No. 16130 - 1³/₄ lb. (520ml) Introductory Kit

Order No. 16131 - 7 lb. (2150ml) Economy Kit

PHYSICAL PROPERTIES AND APPLICATIONS

	REPRORUBBER THIN POUR	REPRORUBBER QUICK SETTING PUTTY
Mix Time (Stirring in a cup)	30 - 45 seconds	30 - 45 seconds
Working Time (Manipulation Time)	4 minutes	2 minutes (from beginning of mix)
Setting Time (at room temperature)	10 - 15 minutes	6 minutes
Permanent Deformation	0.2%	0.3%
Dimensional Stability	less than 0.50%	less than -0.25%
Tear Strength	44 pounds per sq. inch	105 pounds per sq. inch
Elongation	60% at break	6.3% at break
Durometer (Shore A-2)	30 (at 15 minutes)	50 (at 7 minutes)
Temperature Stability	1 week @ 60°C	1 week @ 60°C
Detail Reproduction	EXCELLENT	EXCELLENT

APPLICATIONS:

- ALL METALS
- ALL PLASTICS

- NON METALS
- RUBBER

- You can take impressions of:
- PAPER OR CARDBOARD ITEMS
 - CERAMIC AND GLASS ITEMS

- WOOD, MARBLE, ETC.

Other Uses Include:

- Fixturing where semi-rigid structure is desired.
- Making joints where flexibility is required.
- Prototypes of rubber type components such as gaskets, washers, etc.
- As a mask for high temperature plasma spray of metallic coatings.



PHYSICAL ADVANTAGES OVER THE HARD-COPY REPLICAS

- Replica is easy to remove - even if there are under cuts or grooves.
- Cross-sectioning of replica is easily accomplished with a knife or razor.
- It can then be checked on an optical comparator or microscope.
- Surface finish replication is exact with excellent optical properties.
- Repro-rubber copies can be recopied (copy from a "female mould" yields a male-shaped replica). See page 13 —EPOXY PARFILM ULTRA.
- Replicas are permanent - will not leach or ooze out nor outgas.
- NO MORE 16 HOUR CURE TIME AS WITH RTV SILICONES
- MORE ACCURATE THAN ALL OTHER RTV COMPOUNDS
- REPRORUBBER PUTTY will withstand up to 600°F (or more).

For Repro-rubber® Thin Pour Users

REPRO-MIX™ DISPENSING GUN SYSTEM

A "Ready-To-Fill" Mixing and Dispensing System that Enables You to Make Quick and Accurate Repro-rubber Replicas...Without Manual Mixing and Fuss!

Helix-design mixer guarantees complete mixing of base and catalyst.

Dual Barrel Cartridge, 1:1 Ratio

Low cost, disposable mixing nozzle tips allow multiple applications



Reusable, Rugged REPRO-MIX GUN

REPRO-MIX™ SYSTEM CONSISTS OF THE FOLLOWING:

- 50ml dual barrel syringe with reusable end cap; easily filled by pouring contents of Repro-rubber into cartridge barrels.
- Disposable low cost Helix Mixing Nozzle Tips easily attach to and detach from dual barrel syringe.
- REPRO-MIX Dispensing Gun.

Model No. 16132, Complete REPRO-MIX™ Kit consisting of 1 each REPRO-MIX™ Dispensing Gun, 10 each 50ml Dual Barrel Cartridges, 20 each Helix Mixing Nozzle Tips, Caps, Plugs and complete instructions for usage

Model No. 16133, Dual Cartridge Replacement Pac (10 each including caps and plugs)

Model No. 16134, Helix Mixing Nozzle Tip Pac (20 each)

For Repro-rubber® Thin Pour and Facsimile® Users

MONOJECT PRECISION DISPENSING SYRINGES



.060" dia. curved tip for injecting Repro-rubber or Facsimile into small holes. Tip can be cut to allow greater flow.

Provides User With An Easy Method Of Injecting Pre-Mixed Repro-rubber or Facsimile Into Small Holes, Grooves or Small Spaces.

10cc capacity syringes are easily filled and disposable once used. Sold in low cost packages of 10 each.

Model No. 16190, Monoject 10cc Syringe Pac (10 each)



QUICK-SETTING COMPOUND KITS and ACCESSORIES



COMPLETE KITS

16000	1 lb. Kit FACSIMILE
16003	3 lb. Kit FACSIMILE
16025	25 lb. Kit FACSIMILE

REFILLS FOR FACSIMILE KITS

Order No.

16200	60cc Release Agent, soap based
16201	Pint Release Agent, soap based
16202	1 lb. Jar Facsimile Powder
16203	3 lb. Jar Facsimile Powder
16204	25 lb. Drum Facsimile Powder
16205	120cc Bottle Facsimile Liquid
16206	Pint Can Facsimile Liquid
16207	Quart Can Facsimile Liquid

#16000, one pound kit yields 20 cubic inches of solid (cured) material.
#16003, three pound kit yields 62 cubic inches of solid (cured) material.
#16025, twenty five pound kit yields 518 cubic inches of solid (cured) material.

16208	Gallon Can Facsimile Liquid
16209	100 ea. 3 oz. Paper Cups Graduated
16210	100 ea. 1 oz. Plastic Cups Graduated
16211	25 ea. 6 oz. Plastic Cups Graduated
16212	100 ea. Sticks, Mixing, Narrow
16213	1 lb. Bar Molding Clay
16214	100 ea. Sticks, Mixing, Wide
16914	60cc Release Agent, oil based
16915	Pint Release Agent, oil based

For Air Shipments, EXTRA CHARGE for D.O.T. Approved.
Containers and Overpacking for Facsimile Liquid only.



Also Available from Flexbar: Catalog 205

Featuring 200 pages for Quality Inspection Apparatus, Precision Measuring Instruments and Machine Tool Accessories including:

- Precision Gages
- Replica Casting Materials
- Metrology Apparatus
- Optical and Video Inspection Systems
- Surface Finish Comparators
- Machine Tool and Shop Accessories

In addition to our full-line catalog, please visit the Flexbar website at www.flexbar.com to view the latest products, application information, on-line ordering and more.



Distributed by:



Rapp industrial Sales

127 Main Street

Connoquenessing Pa 16027

(724) 789-7853 fax (724) 789-7288

E-mail Sales@rappindustrialsales.com



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Rapp Industrial call for your prices 724 789-7853

sales@rappindustrialsales.com