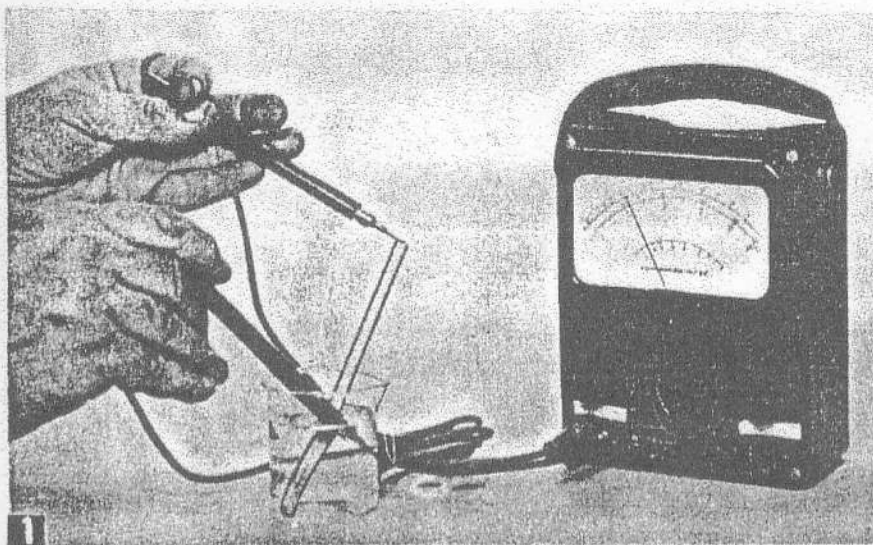


8 languages about CHEMALLOY. It relates to NEW IDEAS, MATERIALS AND TECHNIQUES in hundreds of fields of possible application. In a single year over 100 prizes and awards have been won by Students with this information and product.



Place a rod of Chemalloy in water, touch one probe of a voltmeter to the rod and immerse the other probe in the water—result: .55 volt d-c. According to the inventor, this potential will remain indefinitely.

CHEMALLOY—A New Alloy for the Science Student

Originally conceived as a soldering alloy, this patented substance has anti-friction properties, will aerate soil, improves seed germination, stimulates plant growth, will generate electricity, and ????

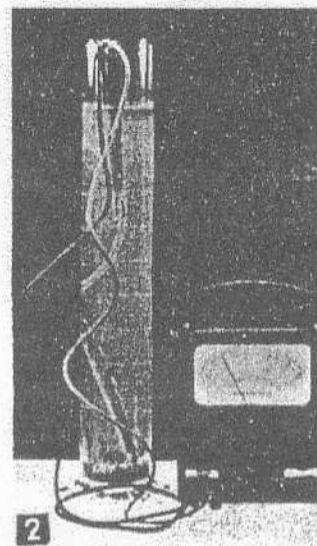
By SAMUEL FREEDMAN

WHAT relation there can be between soldering aluminum and promoting the growth of huckleberries is hard to see—yet in the broadest view, scientists say, all things are in some way interrelated. Chemalloy, with its strangely diverse properties, seems to support this view.

Put a Chemalloy Rod in plain water (Fig. 1) and you have a battery of .55 volt potential that will last as long as the rod is kept wet, generating enough power to operate a voltmeter, milliammeter or oscilloscope. In different liquids, voltage varies from almost zero for petroleum to 1.1 for certain types of chili sauce.

As a bearing material, Chemalloy in a solid dry state withstands friction without coolant or lubricant.

Chemalloy powdered to about 1,000,000 particles per pound exhibits the same elec-



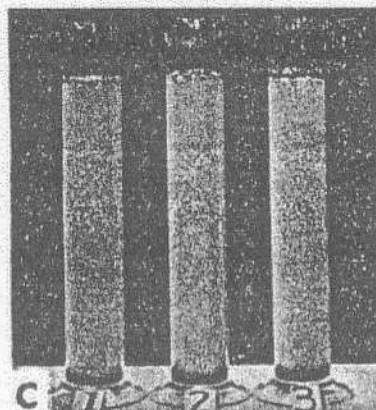
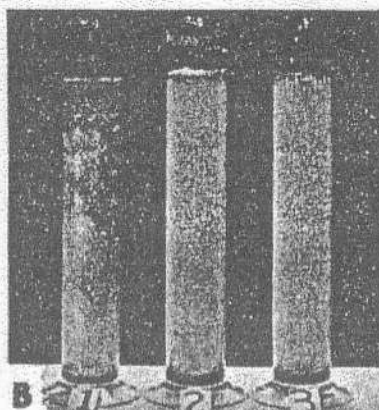
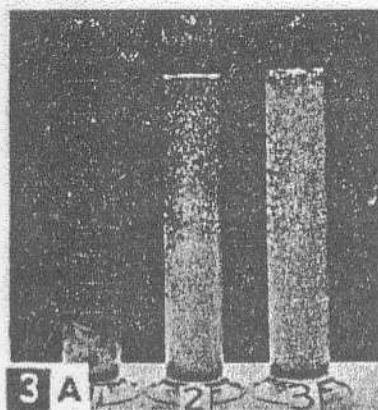
Powdered Chemalloy also produces over ½ volt potential in water, but in addition liberates hydrogen.

trical properties (Fig. 2) as the solid rod. Here it generates slightly more than .5 volt, and in addition decomposes the water, liberating hydrogen.

This process is further examined in Fig.

3. First fill three graduates with water, one cool, the second warm, and the third hot. Add equal amounts of Chemalloy to each graduate. Instantly, the graduate containing hot water liberates hydrogen (Fig. 3A). Heat is generated by the reaction so that with the passage of a few minutes (Figs. 3B and C) the three graduates are equally warm and hydrogen production in all three is the same.

One of the Most Significant Uses of powdered Chemalloy may be the warming and loosening of soils that are too cold or compact for optimum seed germination and plant growth. The warming and aeration of soil on a laboratory basis is shown in Fig. 4. A sample of dry soil is placed on top of powdered Chemalloy in a glass case. Note the temperature rise from 94°F to 126°F. Voltage remains approximately at .6. From this point on, voltage will remain constant, but soil



A. Reaction starts at once in the hot water, graduate 3, more slowly in 1 and 2. B. In a few minutes hydrogen production in graduate 2 equals graduate 3. C. A few minutes later, all three graduates are bubbling equally.

temperature will decline and finally stabilize at a point a few degrees above the environmental temperature. The electrical action will continue and will generate warmth at this reduced magnitude. To date, the capability of *Chemalloy* to generate electricity in water has been observed for seven continuous years, and no limit is known. The liquid, rather than the metal, is the substance which is consumed and must be replaced.

A Provincial Horticulture Station in Alberta, Canada, summarizes an experiment in seed germination as follows:

Vegetable	% germinated (Chem. treated)	% germinated (untreated)
Cucumber	50	16
Red Beet	96	70
Lettuce	64	34
Leek	86	54
Carrot	68	32

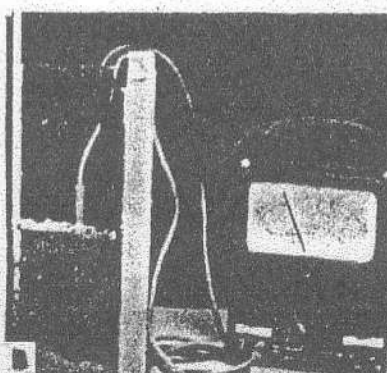
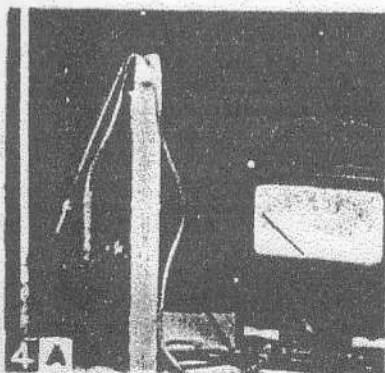
The assistant superintendent supervising this experiment stated that the addition of *Chemalloy* powder resulted in speedier germination of seeds as well as larger percentages germinated. Initial growth of the plants after emergence was also more rapid in the case of treated seeds.

For field crops, *Chemalloy* is applied at the



rate of one to five pounds per acre, in the row or hill with the seeds. It is not broadcast over the entire field area, as this would waste material. It needs to be buried where it will be in contact with soil moisture since it is inert when dry.

The peach and nectarine trees in Fig. 5 were planted in poor compact clay soil in El Cajon, Calif., and stand in sharp contrast to anything else in the area, having grown in 1½ years to the height shown from 1-in. diameter stubs.



A. At the start of the soil aeration experiment, dry soil is placed atop *Chemalloy* powder. Soil temperature is 94°F. B. Water is added to the soil, moistening it. Soil temperature rises to 104°F. Voltage is .6. C. Moments later, soil temperature is 126°F, voltage constant.

FLUXLESS

CHEMAlloy

ALUMINUM SOLDER

SOLDERING
TEMPERATURE
500
DEGREES F.

Makes it Easy
for Anyone to
Solder or Weld
Aluminum, Zinc
or Potmetals
PERMANENTLY

**DO-IT
YOUR-
SELF**

★
**SAFE
AND EASY
TO USE**

★
**NO SPECIAL SKILLS
OR FACILITIES
NEEDED ...**

**REQUIRES NO
FLUX OR METAL
CLEANING**

PRICE

Also
Solders to
Galvanized
Surfaces

TO USE: Merely heat the aluminum to
melting point of solder and apply.

**A Product of
CHEMALLOY ELECTRONICS CORP.**
Santee, California

Profit With The Expanding Use of Aluminum

Available as standard 8" rod, weighing 2 ounces. Popularly priced at the retail level with full discounts to jobbers and dealers. Also available with 2 or more rods on same card, or in bulk 1 lb. and larger cartons for industrial or major users.

This product fills a need. It is proprietary and patented. In addition to fluxless soldering of aluminum and zinc, it also functions well with copper, brass, galvanized or aluminized metal surfaces and a number of other metal solids or coatings.

Protected by U.S. Patent 2,796,345 dated June 18, 1957 plus other pending patents in U.S.A. and abroad.

**OPTIONAL
DISPLAY
RACK**

Available free with initial quarter gross order when Retailer agrees to use. Suitable for table, counter, wall or window mounting. Holds 36 cards on three hooks containing 12 each.



**Chemalloy
Electronics**

CORPORATION

GILLESPIE AIRPORT, SANTEE, CALIFORNIA

IN THE KITCHEN



TO REPAIR UTENSILS

HOME REPAIRS



GUTTERS, FLASHINGS, TV ANTENNA

ELECTRICAL-ELECTRONICS



SOLDERING JOINTS

AUTO REPAIRS



SOLDERING DIE-CASTINGS

ON THE FARM



FENCING, MILK CANS, SILOS

CHEM Alloy
Space Age Science Metals



pH FUEL CELLS

A product of
CHEMALLOY ELECTRONICS CORP.
SANTEE, CALIFORNIA

ELECTRIFIES - AERATES - EVALUATES LIQUIDS AND MOIST MATERIALS

IMPROVED FUEL CELL CONCEPTS

NUMEROUS USES INCLUDE:

ACIDS/ALKALIS	HYDROGEN RELEASE
AERATION/EFFERVESCENCE	HYDROLOGY
ARCTIC AGRICULTURE	HYDROPONICS
BI-POLAR DC FOR AC	*HORTICULTURE
BATTERIES	IRRIGATION
BOTANY	LIQUID DISSOCIATION
BUOYANCY/GRAVITY	MINERAL /TITRATION
CRYOGENICS	*MEDICAL/LIFE STUDIES
DEHYDRATION	OCEANOGRAPHY
ELECTROCULTURE	*PLANT STUDIES
ELECTRICITY	pH STUDIES
ELECTRICAL RESPONSE	PRODUCT IDEAS
EDUCATION/SCIENCE	QUALITY CONTROL
*FLORICULTURE	*RODENT CONTROL
FORESTRY	*SEED GERMINATION
FUEL CELLS	*SOIL WARMING/LOOSENING
*GARDENING	SCIENCE FAIRS/CLUBS
GAS CHROMATOGRAPHY	WATER EVALUATION

*****AGRICULTURE AND GARDENING:** Subject to licensing in some states having broad fertilizer statutes discussed on back of card, may be used in moist soil to aid growth of vegetables, flowers, shrubs and trees.

Plant with buried seeds at rate of 5 lbs. per acre, more or less, depending on seeding density, to make soils more friable and warmer. Useful where soils are too compact, climate cold or season too short.

TO ELECTRIFY

**AND AERATE LIQUIDS
AND MOIST MATERIALS**

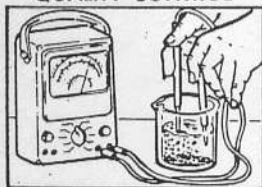
WORKS IN ANY ENVIRONMENT, PRESSURE OR TEMPERATURE

NON-SOLUBLE HOMOGENIZED POWDERED METAL TO

- Aerate and electrify water, acid and alkali liquids or moist materials.
- Make electricity from liquids to energize indicating instruments.
- Evaluate, Compare or Identify medical, hydrological, industrial or food-dairy fluids in terms of electrical response.
- EDUCATION & RESEARCH. Produce Hydrogen from liquids derive batteries. . Restore balance in acid and alkali situations when pH is other than 7 . . Titration studies. To make electricity from liquids to energize indicating instruments.

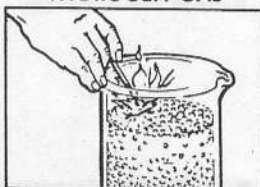
A FEW OF THE COUNTLESS POSSIBILITIES WITH CHEMALLOY

QUALITY CONTROL



INDICATING ENERGY

HYDROGEN GAS



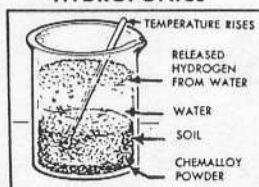
LIQUID FIRECRACKERS

ANTI-GRAVITY



BUOYANT METALS

HYDROPONICS



SOIL WARMER/LOOSENER

GERMINATION



CHEMALLOY IN SEEDING

TECHNICAL DESCRIPTION: Any size piece or particle of Chemalloy yields about .5 volt at 200 microamperes in water as evidenced by connecting a meter with one lead to a single particle of metal and the other lead anywhere in the liquid or moist material. It will indicate higher or lower in liquids other than water depending on their pH. Sea water is about 50% higher than fresh water. Chili Sauce is about twice as much as water. Since Chemalloy is powdered over 1,000,000 pieces per pound to become that many electrical entities, this is enough to decompose liquid into multitudes of hydrogen gaseous bubbles. Hydrogen is the lightest element known and yet comprises one-ninth of the weight of water.

INSTRUCTIONS: Chemalloy's electrifying properties break down liquids to release hydrogen and disturb the pH. pH is the unit measure for quantity of hydrogen ions free in a solution. Water is neutral with a pH of 7. Any acid will be lower and any alkali will be greater than pH7. Chemalloy works with liquids and moist materials found in the home or on grocery shelves. Fruits, juices and soft drinks have a pH of about 3, indicating an acid with 10,000 times the free hydrogen ions of water. Vegetables are pH5 to 6 (10 to 100 times). Seafood and milk at 6 to 6.9 (nearly neutral). Sea-water is alkaline and above pH7 as are fresh eggs, soaps, ammonia and milk of magnesia. Chemalloy in contact with anything wet provides the information needed to conduct experiments by degrees of electrification, aeration and pH.

ACID-WATER-ALKALI (BASE) pH TABLE

pH	Amount Free Hydrogen Ions Over Water
pH 1	Acid 1,000,000 times (semi-potent)
pH 2	Acid 100,000 times (lemon juice)
pH 3	Acid 10,000 times (fruits)
pH 4	Acid 1,000 times (beer)
pH 5	Acid 100 times (vegetables)
pH 6	Acid 10 times (milk)
pH 7	Neutral (PURE WATER)
pH 8	Alkali 1/10th of water (sea water)
pH 9	Alkali 1/100th of water (borax)
pH 10	Alkali 1/1000th (household ammonia)
pH 11	Alkali 1/10,000th (milk of magnesia)
pH 12	Alkali 1/100,000th (saturated lime)
pH 13	Alkali 1/1,000,000th (semi-potent)