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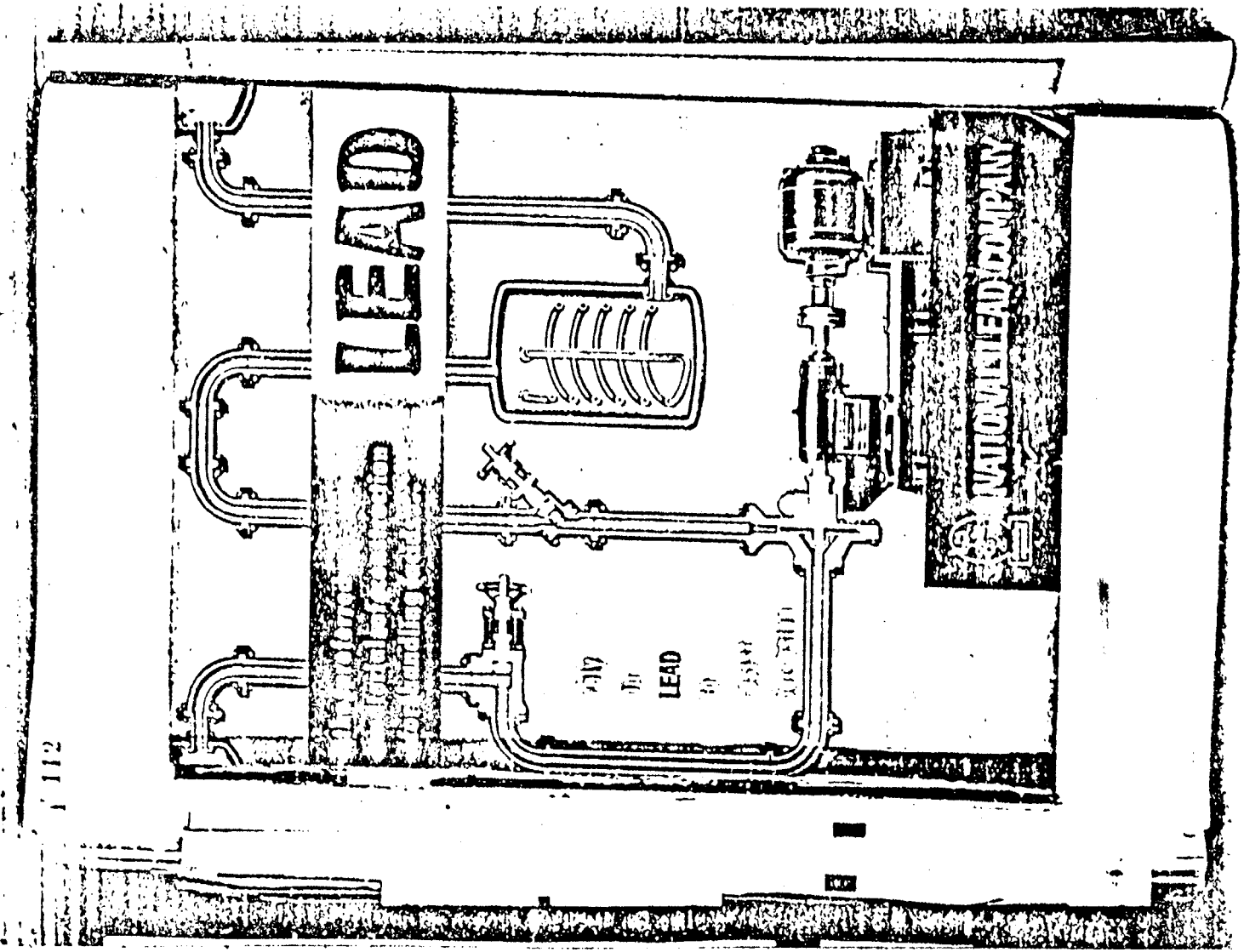

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# for handling corrosive chemicals... LEAD is basic

THE SERVICE record of lead as a "container" for acids is an open book to most chemical and process engineers. Because the metal has been used so long and so widely and so successfully with corrosives it usually comes first to the mind of the man with an acid handling problem. Whether lead is the material of final choice depends, of course, upon several factors. The most important of these is resistance to corrosion for as long as possible with as little maintenance as possible.

Other considerations are availability of the material, cost, ease of fabrication or installation, adaptability to design changes after installation, ease of repair and ultimate salvage value.

Where the comparatively low tensile strength and melting point of lead may seem to militate against the use of the metal, it should be remembered that lead lined and covered equipment is available. Thus the user may have the advantages of lead's corrosion resistance in combination with the strength and high heat resistance of iron or steel.

The examples of lead work and the items of lead equipment shown on these pages by no means exhaust the chemical installation possibilities of this versatile metal. They serve to indicate that what lead has done lead can do. Further, they may suggest other types of acid handling equipment which can be developed by design and construction engineers working hand in hand with National Lead technicians.

## PERFORMANCE DATA ON CHEMICAL LEAD SHEET















## grades of lead...

It should be understood that the term "lead" as it is applied here is a convenient all-inclusive word that covers what in reality are lead alloys based on "chemical" lead. To assure the maximum service and efficiency in its lead goods, National Lead Company uses the proper "alloy" for the indicated purpose.

**chemical lead** – the standard type or grade of lead used by National Lead Company in manufacturing chemical lead goods. The terms corroding and product of more than [illegible] Lead Co. mean of [illegible] lead. This is a grade of [illegible] lead that has a purity of [illegible] copper and 0.01% silver. The presence of these metals increases the lead's natural corrosion resistance, as in resisting certain temperature and chemical tensile strength and fatigue strength.

**tellurium lead** – a basic Chemical Lead in which has been incorporated a small quantity of tellurium – approximately 0.06%. Tellurium lead has somewhat greater resistance to corrosion than Chemical Lead, particularly where a combination of high temperature, vibration and mechanical stress exists. Tellurium lead is used in a number of ways requiring resistance to

**antimonial lead** – a basic Chemical Lead alloyed with a percentage of antimony. This type of lead is widely known as [illegible] lead. Depending upon the end use of the metal, the [illegible] many common alloys contain between 4% and 12% antimony. [illegible] has greater mechanical strength than Chemical Lead. The [illegible] Antimonial grades having the same tensile strength of Chemical Lead at room temperature. It should be recognized that Antimonial Lead has a considerably lower melting point by about 150 F. than Chemical Lead and should not be used with temperatures above 220 F to 240 F.

**tellurium-antimonial lead** – a basic Chemical Lead containing the standard percentage of tellurium and a specified percentage of antimony, generally 8%. This grade is harder and stiffer than the straight Tellurium grade and shows better resistance to abrasion. Where conditions of corrosion as well as corrosion exist, Tellurium-Antimonial Lead is widely used.

**"nalco" metal** – a basic Chemical Lead alloyed with elements that give the metal better resistance to chemicals and plating solutions. Nalco metal is intended for use by chemical plating metal processors, as are liners of tank linings, lead pots, [illegible] tools and anodes. Its special value in these services is its ability to form upon its surface a coating of lead chromate that will remain on the metal as a protection against deep corrosion and pitting.

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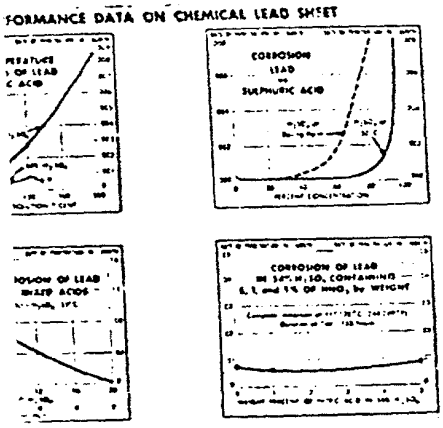


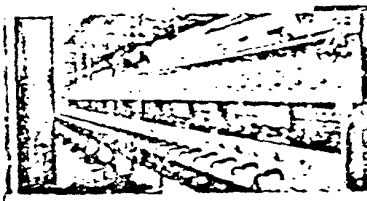

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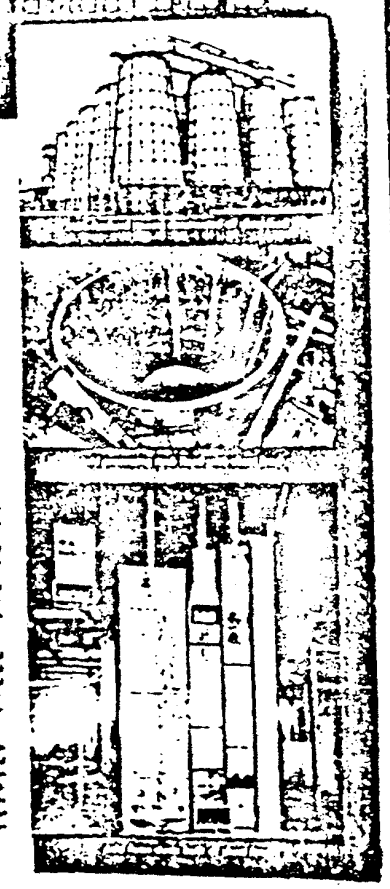
**chemical lead** ...

**tellurium lead** ...

**antimonial lead** ...

**tellurium-antimonial lead** ...

**"nalco" metal** ...



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ACID RECOVERY PLANTS

SIMONDS-MANTIUS VACUUM PROCESS

Engineering Data on Lead Pipe

DATA ON LEAD PIPE FOR HEATING COILS

WORKING PRESSURES