



Lead Industries Association, Inc.

252 Madison Avenue • New York, N. Y. 10017 • Telephone: (212) 678-6088

December 28, 1972

SUBJECT: PUBLICITY STATUS REPORT

TO THE MEMBERS OF THE LEAD INDUSTRIES ASSOCIATION, INC.:

Attached is the Fourth Quarterly Report on LIA's Publicity Program for 1972. We are pleased with this effort, which for 1972 has produced the following:

- 35 - Feature Articles Completed
- 44 - Feature Articles Published
- 119 - News Articles Published
- 23 - Editorial Request Responses

As before, photocopies from our publicity proofbook for this quarter are also attached.

Sincerely,

Jerome F. Smith
Secretary & General Manager

JFS:lm
Attachment

December 1972

LEAD INDUSTRIES ASSOCIATION
TRADE PUBLICITY PROGRAM
YEAR-END REPORT
September - December, 1972

Highlights of current publicity projects discussing lead applications.....in ARCHITECTURE:

* Features on lead sound barriers at.....

Hampton Mews, East Hampton, N.Y. - a feature article discussing the use of sheet lead to solve noise problems in an apartment complex was published in AMERICAN METAL MARKET and APARTMENT CONSTRUCTION NEWS.

* Features on lead roofs at.....

The Bellport, L.I., High School and the Arts and Drama Center at Baldwin-Wallace College, Berea, Ohio -- a feature article published in ENGINEERING NEWS RECORD.

The following articles discussed the use of lead in BATTERIES:

- * Lead Acid Batteries Show Strong Growth Potential - a special feature published in the special battery supplement, AMERICAN METAL MARKET.
- * Electric Powered Truck Due For Wichita Test - Interview with Connel Baker of LIA in Wichita (Kan.) Beacon.
- * Lead Acid Battery Proves Itself in Knitting Mill - Feature article discussing the use of electric fork lift truck to solve corrosion and environmental problems in N.C. Knitting Mill - Published in AMERICAN METAL MARKET and TEXTILE WORLD.
- * Battery-Powered Trucks Provide Economy, Safety - Feature Article published in INDUSTRIAL MAINTENANCE & PLANT OPERATION.

The following applications discussed the use of lead for
NOISE CONTROL:

- * Sound Control Materials Let The Sound of Silence Be Heard - Special three-page feature article prepared in cooperation with the editor of PRODUCT ENGINEERING.
- * A feature release discussing the use of lead in a newly developed machinery noise enclosure panel was published in AMERICAN METAL MARKET, MACHINE DESIGN, IRON AGE and DESIGN NEWS.
- * A summary of lead applications involving noise control was published in AMERICAN METAL MARKET and THE MINING JOURNAL.

The following feature release discussed the use of lead in
PAINT:

- * Proposed Nationwide Highway Safety Program To Increase Use Chrome Yellow Paint -- feature article published in AMERICAN METAL MARKET.

A special feature on the use of lead for stained glass applications was published in.....

- * The NATIONAL GLASS DIGEST

The following literature availability announcements were published:

- * Facts About Lead Glazes -- published in 4 magazines.
- * Lead -- As a Modern Design Material - published in 6 magazines.
- * 1972-75 Free World Supply and Demand of Lead & Zinc - published in 14 magazines --- NOTE: Four of the magazines used the publication to prepare an in-depth report.
- * Lift Profits Electrically -- Published in 11 magazines.
- * Lead Applications for Sound Barriers - published in 2 magazines.

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- * World Trade Center Construction Results in Four Record Uses of Sheet Lead
- * Newly Developed Machinery Noise Control Enclosure Takes Advantage of Sheet Lead's Acoustical Properties
- * Proposed New Nationwide Highway Pavement Marking Program To Make Major Use of Chrome Yellow Paint

.....and for publication of the following articles which are being readied for distribution:

- * New Noise Control Panel Developed To Solve Sound Attenuation Problems at Long Island Lighting Company Features Extensive Use of Sheet Lead
- * Leaded Vinyl Plays Important Role In Solving Noise Problems For Grumman Aviation's Gulfstream II Executive Jet and Experimental Tracked Air Cushion Vehicle
- * Increased Use of Radioactive Material To Treat and Detect Cancer Result in Expanded Use of Lead to Shield Against Harmful Radiation
- * New Lead/Zinc House Planned

Fourth Quarter
Summary of Publicity Activities

Feature Articles published.....	10
News articles published (including literature availability announcements).....	32
Feature Articles Completed.....	4
Feature Articles in Preparation.....	6
News Releases Completed.....	3
Editorial Request Responses.....	5

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11.28 APARTMENT CONSTRUCTION
NEWS
NOV. 12, 1982

SEP 1972



FIG. 1: SYNTHESE & SYNTHESE PUMPED OUT NEW BUILDING OF HUNTERTON, N.Y., APARTMENT COMPLEX. TWO OF 14 BUILDINGS MOVED OUT DURING THE FIRST YEAR OF OCCUPANCY AND DEVELOPER SYNTHESE PUMPED OUT MORE CAR BUILDINGS TO SOLVE THE PROBLEM. THE FLOOR THROUGH APARTMENTS AND SECOND STORY APARTMENTS ARE NOW FULLY MOVED AND THERE HAS BEEN AN IMPROVEMENT TO THE 14 UNITS ON OCCUPANCY.

Sheet Lead Solves Apartment Sound Attenuation Problems

Long Beach, N.Y.—When the first of the first 14 units in Henry Hall's Hunterton, N.Y., apartment and townhouse complex moved out during its first year of occupancy complaining of excessive noise, the developer engaged the services of an acoustical consultant to solve the sound problem before the next floor was thrown completely out of line.

In every other way, the units were a model project. Located in a secondary site setting in the resort area, the apartment complex features such amenities as fireplace, skylight, two-level high construction being done from point to terrace and separate entrance. The

first building of the three-building complex contains a row of eight second-story units. There are four-story apartments at ground level and a second-story duplex apartment that is reached via an outside stairway between each unit.

The noise problems were caused by a number of factors, some of which were thought to result in sound transmission deterioration when the first unit was built.

The wood structural system used to construct the building and the materials used for the floor of the second-story duplex apartment resulting in the creation of a drumhead that provided access to the second floor area of the 14 apartments in the building. The drumhead effect magnified the duplex sound.

As the first step in solving the sound attenuation problem, structural engineer M.J. Anderson & Associates, Inc., the same level transmission of sound every building in the apartment. A concrete of two layers of 1/2 in. steel plywood and a layer of 1/2 in. steel gypsum board added to solve the noise problem with a 1/2 in. steel gypsum board to solve the noise problem. The construction had an STC rating of 34, but at which lead speech is about audible.

According to James Wall of M.J. Anderson & Associates, the noise attenuation improvement could be achieved by installing three 1/2 in. J. 1/2 in. steel sheet lead over all second-story floor area of the apartment except for kitchen or bathroom areas. First coming carpet and underlay in bathroom area was removed. Soundboards and shoe mats were then removed and the sheet lead was installed and brought right again finished wall surface.

The sheets were taped to each side joint and sub-floor joints were a 1/2 in. all sheet floor area. The lead is turned up slightly against all four partitions to protect the integrity of a barrier and then the soundboards or shoe mats were replaced. Extra carpet underlay and carpet were then installed over the lead.

In the living dining areas, the sheet lead was laid down over the floor board installed when the first building is constructed. Installation steps were taken as those used in the bathroom. New carpet was then installed over lead.

After the lead sheet barrier was installed, the flooring achieved an STC rating of 39. According to the acoustical engineers, at this level lead noise levels are

SHEET LEAD SOLVES SOUND ATTENUATION PROBLEMS FOR LONG ISLAND APARTMENT COMPLEX

Published in APARTMENT CONSTRUCTION NEWS



INSTALLING 1/2 IN. J. 1/2 IN. steel sheet lead over original flooring raised STC rating from 34 to 39. A layer of which had been a barely audible sound structural system and materials used for second story floors had created a drumhead effect which caused original noise problems.

APARTMENT CONSTRUCTION NEWS

BUILDINGS USE LEAD TO FIGHT NOISE POLLUTION

Published as the result of a
editorial request from:
ENGINEERING NEWS-RECORD

Buildings use lead to fight noise pollution

Case study lead sheet largely ignored as a construction material because of cost, is making a comeback because of its sound attenuating qualities as structure and architects seek ways to reduce noise inside buildings.

At the recently constructed Art and DeLoe Center at Baldwin Wallace College, Berea, Ohio, located under a glide path near Cleveland's Hopkins International Airport, the lead system used lead sheet to provide a sound barrier.

The lead over the center's two stages runs almost vertically to cover a large lot. It was covered with 1-1/2 to about 1-3/4 lb per sq ft lead sheeting backed with layers of building felt rigid insulation and plywood. According to a spokesman for architect Howard Miller Wilkerson, Inc., Cleveland, the noise attenuating requirement forced a choice between a concrete slab roof or lead-sheathed roof using lead on all exposed surfaces. The sandwich construction, installed for about \$5 a sq ft, required no backing up of columns or footings.

Sheet lead is also finding a use in new construction to form plenum barriers



Thinner lead sheet to sound barrier

above the bridge to stop noise from moving from one room to another. For example, at a major addition to a power house at Belvoir, N.Y., lead sheeting was suspended from roof support girders at right angles to the long bearing walls and partitions across compartments close the passage of noise moving from one room to another through the space above the ceiling is sharply reduced. In which, the lead sheeting has been placed above the tracks of sliding classroom walls for sound attenuation when the walls are unfolded and in use.

batteries

section

More Muscle for Lead-Acid Power 2A
Lithium Progress Crossing Market 3A
Battery Research Needed 7A

SECTION TWO OF AMERICAN METAL MARKET - TUESDAY, NOVEMBER 21, 1972

AMERICAN METAL MARKET

Article published in
special Batteries Section
as the result of editorial
contact

Lead-Acid Batteries Show Strong Growth Potential

By LEAD INDUSTRIES ASSOCIATION

NEW YORK — In 1970 the industry forecast an annual growth rate of 8 percent a year over the next five years for industrial lead-acid batteries which includes traction and stationary types. For the first year, 1971, this rate was almost exactly achieved, but teenage rates suggest something more than a 1,000 ton gain over the previous year. (The teenage figure has exactly doubled in the past 10 years.) This predicted gain was largely due to the increased use of electric power in plant vehicles, recognized now as viable in many more applications due to improvements in battery and vehicle technology.

However, in 1970, two factors were not calculated in the forecast. Environmental pressures and the introduction of large "boosting" computer back-up systems.

In the first instance, the growth of the electric industrial truck over the internal combustion engine variety has accelerated far beyond expectations, due in large measure to new Federal standards on air quality control.

The largest truck manufacturers now report for the first half of 1972 that industrial truck production is running only about two I-C engines for one electric, whereas three years ago the ratio was four to one, I-C over electric. It is estimated that

this will bring the growth gain in lead batteries in 1972 to as much as 23 percent over last year with no projection as yet for beyond.

Although no teenage figures are available at this time, the new uncorruptible power systems (UPS) technology is becoming a factor in the use of lead for batteries. As much as 60 tons have gone into one of these installations which have become vital to data processing and computerization of critical control methods.

Since infinite reliability is a necessity in these applications, batteries are utilized to "float" the mechanism, whereby cycle frequencies and voltage fluctuations — more and more a problem with machine AC sources — can now be controlled within the required extremely narrow limitations. There is no specific forecast for this field, but the hope is quite apparent. The lead can only grow.

Also it is worth mentioning in this category that lead acid

batteries are serious contenders in another new application. Peaking power in this consideration, batteries will be used in power distribution centers and pumped storage plants for bolstering power supply at critical demand periods, having been charged during off-peak hours. However, it is too early to speculate what this might mean in the marketplace (grasses high requirements) pending further R & D.

RLI Category Gaining

Of the almost 600,000 tons of lead used for total battery production in the United States last year, the major portion went into the starting, lighting, ignition battery (SLI) category. Nearly 30 million units were produced in 1971 — including original equipment — and the conservative forecast is 30 million by 1980.

Not all of these, however, are for autos.

New starting uses in power boats, lawn mowers, trail bikes and the phenomenal snowmobile market brought brand new demands on battery production in this area, plus the new "electric car" battery, a re-configuration and improvement of the former golf car battery which powers the electric lawn and garden tractor now being popularized by at least two major manufacturers. Of course, the present electric golf car population in the US is about 100,000 units each one requiring 8 — 6 volt batteries for traction. Replacement units here are viable and new sales annually run about 8,000 units.

Unquestionably, the future for lead batteries is a bright one.

AMERICAN METAL MARKET

second article published
in special Batteries Section
as the result of editorial
contact

Storage Battery Profile

The U.S. lead acid battery industry is composed of over 60 manufacturing members belonging to the Battery Council International. An additional 40 or so foreign battery makers are members, plus those firms supplying the battery industry with raw materials, and those marketing its products. Some important producers do not belong to BCI.

SUPPLY. Over 40 million replacement batteries are forecast for 1972, compared to actual output of slightly over 36 million S&I (starting, lighting, ignition) units last year. The total figure has grown every year since 1966 and is expected to continue in that direction. The forecast for 1973 is 43 million replacement batteries, almost 46 million by '74, 47 million by '75, and just shy of 48 million units by 1976.

The automotive battery market continued to increase in 1971, although it did not show the rate of increase during previous years. First-quarter and fourth-quarter statistics are most significant, primarily because of extremes of cold weather during those months. Second and third-quarter results are relatively stable.

First quarter 1972 showed an overall increase of 16.7 percent in shipments.

DEMAND. There is little, if any, slackening of batteries. Demand is generally synonymous with production, as the balance is closely monitored and maintained. Forecasts of annually increasing battery production are based on estimates of end-use demand.

Battery technology — resulting in longer-life batteries — is not expected to reduce the annual demand from vehicle production, peaking every year, and mean more batteries, even though replacement time will lengthen.

FOREIGN TRADE. Almost \$12.5 million worth of 6 and 12 volt batteries were exported by U.S. manufacturers last year, or about \$30,000 units. Exports have grown every year since 1966, but the rate should taper off in the years ahead due to a build-up of foreign know-how and the

(Continued on page 5A)

Storage Battery Profile

(Continued from page 5A)

evolution of foreign automotive industries.

In 1971, the United States imported almost \$10 million worth of lead acid storage batteries and parts. That figure should not change too much in the years ahead.

RAW MATERIALS. Lead is the heart of the lead-acid battery. In 1971, battery makers consumed over 280,000 tons of antimonial lead, plus a sizeable tonnage of lead oxide.

The storage battery is the one bright spot for lead products. Growth of the battery industry is expected to pick up the slack caused by the phase-out of lead from pesticides.

There are no serious hopes forecast for lead supplies to the battery industry. As it is, about half the total available lead supply in the United States is a result of secondary (recycled) production.

In the battery industry the trend appears to be for manufacturers to build new and larger lead smelters of their own, thus becoming less dependent upon outside vendors or the primary lead producers. Data for integration into plant is causing manufacturing.

A more fully integrated battery manufacturing industry would also be a hedge against unexpected price fluctuations for raw materials.

USES. The conventional lead acid storage battery is the standard for private automobiles, trucks, government vehicles, golf carts, snowmobiles, motorcycles and similar vehicles. With increased recreation time, more and more recreational vehicles are being produced and sold. As the engines powering these vehicles grow larger, so will the demand for the storage battery.

OUTLOOK: Electric starting of all types of vehicles is here to stay. The larger the vehicle or the engine, the more batteries it needs or the larger its power requirements become.

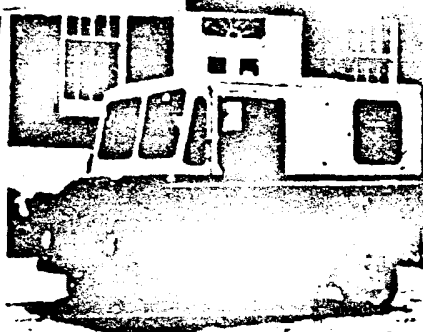
The 6-volt automotive battery is fast going by the boards altogether, with emphasis on the larger, more powerful 12-volt variety.

If the age of the electric vehicle is in the offing, the battery industry will be one of the first to reap the rewards.

—KENNETH W. CLARFIELD

WICHITA BEACON
WICHITA, KANS.
8 6478

SEP 27 1972



KGAE will get electric van like this.
Vehicle is to be part of nationwide test by utilities.

Electric-Powered Truck Due for Wichita Test

The familiar rear end and broad of the electric combustion engine will give way next year to the quiet whirr of an electric motor in a service vehicle KGAE. The Electric Co., has received the go-ahead to build.

KGAE will receive one of more than 100 of the electric vans being built as part of a nationwide testing and development program under the sponsorship of the Electric Vehicle Council.

The TRUCK used in the program will be powered by a 30-hp traction motor and two sets of batteries. One man can replace the two sets of batteries with freshly charged ones in two minutes. A single charge will operate the van up to 80 miles.

A KGAE official said the local utility company's role at the time is twofold — to learn what kind of facilities will be needed in the future to serve electric vehicles and to develop operating experience with electric trucks under normal working conditions to help advance technology.

THE FEDERAL Power Commission predicts there will be 20 million electric

vehicles on the nation's streets by 1985. Data from the operations of the van which will be used in KGAE's fleet will help the firm in planning to meet the electrical needs of electric vans, a spokeswoman said.

The KGAE van will accommodate a driver and one passenger, plus a 1,000-pound payload in the rear cargo compartment. The truck will be 14 ft long, 7 ft wide and 10 ft high. It is being built by a Pennsylvania company in producing the van.

The Electric Vehicle Council is a national association of manufacturers of electric light and power companies.

parts in the electric vehicle," he said. This greatly reduces the maintenance and repair required.

NO ALARM BELL there is little or no pollution caused by the electric vehicle. "This is one of the major problems with the use of the IC vehicle is hazardous and noisy," he said.

The carbon monoxide produced by the internal combustion engine — gasoline, gas or LP gas — is one under strict control by federal pollution laws.

"Carbon monoxide," he said, "is the most target under the pollution control laws." He added that 1970 carbon monoxide law has been blamed for much of the pollution damage.

Many electric vehicles used by business and industry need to be operated in closed areas where carbon monoxide can be very dangerous, he added.

BAKER SAID electric vehicles can be operated at three cents per hour less than a similar internal combustion vehicle. "This is regardless of the type of the IC vehicle is run," he said.

He also noted that recent developments in battery design have greatly increased the life of the battery used in most

ELECTRIC-POWERED TRUCK DUE FOR WICHITA TEST ---ELECTRIC VEHICLE ADVANTAGES CITED

Article published in Wichita Beacon, Wichita, Kan., as the result of interview with Connel A. Baker, Jr., LIA Staff

Electric Vehicle Advantages Cited

LEVIN BAKER
Wichita, Kan.

Advantages are cited for use of electric vehicles for business and industry. A official said he has taken time to research various uses of electric vehicles and to develop a list of advantages. Electric vehicles have many advantages over internal combustion engines.

One of the advantages of electric vehicles is that they are quiet. "The electric vehicle is much quieter than the internal combustion engine," he said.

Another advantage is that electric vehicles are easy to maintain. "The electric vehicle has fewer moving parts than the internal combustion engine," he said.

A third advantage is that electric vehicles are safe. "The electric vehicle has no open flame or hot surfaces," he said.

Finally, electric vehicles are economical. "The electric vehicle costs less to operate than the internal combustion engine," he said.



Baker demonstrated one model of a non-street electric vehicle.

Runners and industry urged to use battery-powered equipment.

"The industrial battery used in these vehicles has a narrow life span," he said. "This can be extended up to 10 years with proper care and maintenance."

He also noted that recharging of the battery can be done at night when the

low power electrical rates are available.

"The battery returns the energy," he added. "These LED systems are also useful for the summer and the winter when the current electric rates are available."

INDUSTRIAL MAINTENANCE &
PLANT OPERATION
A. PLUMB

SEP 1972

SEP 1972

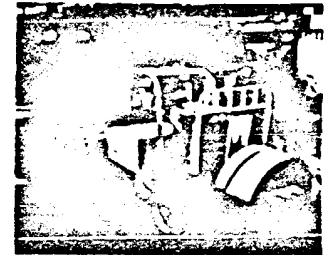
Battery-Powered Trucks Provide Economy, Safety

Efficient material handling plays a major role in the success of a modern plant, and industrial trucks are an important part of the material handling system. They lift, load, move, stack and transport goods, are vital links in the chain of production and distribution.

In recent years, battery-powered trucks have gained in popularity, and here's why.

Efficient, Long Operating Life

Battery-powered trucks are used to provide a superior operating economy due to longer life, lower maintenance and a higher rate of equipment utilization. Specific features that contribute to this economy include low cost



Operator shows maneuverability as his battery-powered truck demonstrates its ease of use in moving heavy loads.

fuel efficiency, conversion of fuel to power, simplicity in transmission of power and speed of operation.

Friction moving parts and vibrations running under electric trucks are greatly reduced. As a result, they have a life expectancy of 40 to 75 years on a one shift operation. Because maintenance and downtime are decreased, the electric truck is "on the job" more of the time.

Fuel Free And Highly Maneuverable

Battery electric trucks do not smoke, drop engine oil or have an exhaust to stir up dust. They aid in the fight against operator fatigue and worker distraction, since they operate quietly and generate no heat, vibration or excessive fumes. Safety features include reduced fly hazard and better operating visibility. These features reduce time lost after emergency cases.

Electric power permits design flexibility that allows the construction of trucks that are compact and highly maneuverable. Specialized models can operate in restricted spaces, contributing to plant efficiency through improved space utilization.

These features promote safe, more pleasant working conditions and go a long way toward helping the plant engineer conform to OSHA regulations.

The Editors of *IMPM* thank Lead Industries Association, Inc. and the 3rd International Conference for their assistance in preparing this article.

Circle 100 Reader Service Card

BATTERY-POWERED TRUCKS PROVIDE ECONOMY, SAFETY

Article published as the result
of editorial contact with
INDUSTRIAL MAINTENANCE & PLANT
OPERATION - LIA given credit for
contributing to article

LEAD ACID BATTERY PROVES ITSELF AT KNITTING MILL

Published in AMERICAN METAL
MARKET (first publication of
news feature devoted to subject)

AMERICAN METAL
MARKET
NEW YORK, N. Y.
6 15-32

OCT 17 1972

lead and zinc market

Lead Acid Battery Proves Itself at Knitting Mill

NEW YORK — The old standby — the lead-acid battery — just made its bones for the umpteenth time. Some of the drama was a North Carolina knitting mill.

After a real life story, some hard-earned dollars had proved a point to Gus Fagelman, president of Aberdeen Tractor, Inc., in Aberdeen, N.C. Strange things began to happen shortly after Fagelman opened his plant. Here's how the *Lead Industry Association* told the story in its magazine.

Knitting machines and machinery parts were running with expensive maintenance and parts replacement required to keep the plant operating. Some employees and customers began to complain. Production and sales were decreasing because of equipment down time and losses in production runs.

Improvements, plant engineers and other company investigators were called upon to act as detectives to the hunt for the stranger that no one could seem to locate.

Mystery Problem

Temperature and humidity conditions, combined with different issues from a propane-burned fork lift truck, were first thought to be causing the mysterious eye irritation and asthma problems, since they were most evident in the area of the plant where the truck operated.

Corrosive fumes prevented runs from moving through the knitting zone effectively slowing down

production. An estimated \$100,000 was spent to replace running machinery and a two-month period on half the 14 machines in the plant.

In the meantime, steps were taken to replace the truck's carburetor, lower the engine and change the fuel tank. But the symptoms of machinery continued unabated.

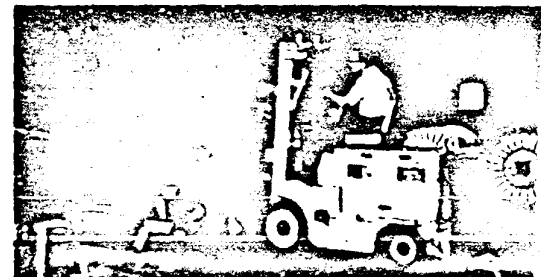
Fagelman thought of burning in the ventilation system was causing trouble, so he called in representatives of the Carolina Power & Light Co. to investigate.

After giving the plant a thorough going over, they found that the only deficiencies were running out of the production area, and attention was focused back to what was first believed to be the source of the problem: the fork lift truck.

Other Issues

They speculated that fumes emitted from the truck operating in the closed environment of the plant produced an abnormally high concentration of fumes in the atmosphere. When the air was sent out with water vapor in the air, the combination formed sulfuric acid, which is highly corrosive to most metals.

The investigators also concluded that the sulfuric acid mist caused the



LIFT TRUCK — A 4000 lb. capacity lead acid battery-powered lift truck at the Aberdeen, N.C. knitting plant of Aberdeen Tractor, Inc., was substituted for a propane-burned vehicle which was causing production, corrosion and environmental health problems at the plant.

human and eye irritation. They recommended that an electric fork lift truck replace the propane-burned vehicle.

Wishing to prove their theories and to honor Aberdeen Tractor that their expenses were warranted, the electric company promised the use of battery-powered electric to be tested plants because they are normally recharged during off-peak hours. Carolina Power donated the company to studying the corrosion and environmental problems.

They found that fumes placed near where the fork lift truck operated would run in three hours, while those at the rear of the building, and some distance from where the truck operated, lasted 15 hours.

While this tended to confirm the theory about the propane truck, it was felt that the test was too restrictive because of the difference in conditions at the front and rear of the plant.

In addition to sulfuric acid, it was discovered that propane could contain sulfur which may interfere in

the engine and produce sulfuric acid fumes which promote the high rate of machinery failure.

With the evidence mounting up, Fagelman ordered a lead acid battery-powered fork lift truck as a replacement for the propane-burned vehicle.

During the 18 months the new truck has been in operation, the plant has experienced no noticeable corrosion or loss and there have been no further incidents of human or eye irritation.

Based on the successful use of the electric truck at the Aberdeen plant, Fagelman ordered another one for a new \$1,000-a-ft. plant that he manages just as on the street.

SWITCH OF LIFT TRUCKS FROM PROPANE TO ELECTRIC REVIVES TRICOT PLANT

Published in TEXTILE WORLD
(second publication of news
feature devoted to subject)

Textile World

Switch of lift trucks from propane to electric revives tricot plant

You're running a small knit hatting plant that's brand new. You've got the latest in production equipment, a controlled environment (70 to 80 F., 50 to 60% humidity) and electric heat. You're using a propane-fueled internal combustion engine truck for handling and loads up to 1,500 pounds. Everything's beautiful. Suddenly, something happens.

Your knitting needles, one chucks parts, and other plant equipment start rusting. In fact, it gets so bad that you lay out an estimated \$5,000 for knitting needles alone in a two-month period. Knitting needles even corrode during machine down time for pattern change, and door lathe rust. Maintenance and supply parts costs soar.

Knit employees begin suffer the nausea and eye irritation. Employee health and morale become a total concern. Under stress, already gone down with loss of machines and total output, as machines are stopped frequently for periodic replacement. This disrupts a smooth sales and shipment flow. This is not fiction. It's exactly

what happened to Glenn Fugleman, who had averaged 25 years of savings and knitting experience in his knit hatting plant in Aberdeen, N.C. The startup in October 1980 went off with no hitch, and things were looking great until these problems cropped up a short time later.

After eliminating several possible causes, Mr. Fugleman zeroed in on what he thought was the culprit—a problem with the plant electrical heating system, since the condition was worst when it could weather. He he

requested assistance from the power company engineers.

But they quickly eliminated the possible cause.

So Mr. Fugleman decided to study the propane lift truck operation—and he paid for it. Research showed a direct relationship with the problem. Propane from the truck in the plant's closed environment produced a high concentration of nitrogen. When this mixed with the atmospheric water vapor in the plant, and combined with the heated air, a chemical reaction took place. It formed nitric acid mist, highly corrosive to most metals.

The study also showed that employee nausea and eye irritation were caused by two nitric acid-based poisonous gases—nitric oxide formed with nitric acid combustion with metal, and nitrogen dioxide, formed when nitric oxide combines with oxygen.

Mr. Fugleman decided the propane-powered truck had to go. He could have opted for a catalytic converter (Textile World, Jan. 1973 p. 34). This equipment replaces the regular structural muffler. He got a lead acid battery-powered truck as a replacement.

Propane. All the problems disappeared, and in the 18 months since that truck went into operation, not one problem has occurred.

Although lead acid trucks have a higher initial cost, low upkeep and operational costs can level them out. With the rapidly increasing implicit environmental concern, unwanted fumes spell trouble.

Electric trucks have high initial cost — but no pollutants

Truck type	Gas engine powered			Electric powered		
	Initial cost	Operating cost	Range (miles)	Initial cost	Operating cost	Range (miles)
7,000	\$5,200	\$4,000	54,000	\$4,000	\$1,200	5,700
3,000	5,100	7,200	5,000	5,200	5,400	5,100
4,000	5,700	7,700	7,200	5,000	10,100	5,300
5,000	7,100	7,900	7,700	5,000	11,000	10,100
5,000	10	8,700	8,000	10,400	11,000	10,000

Source: 11

SOUND CONTROL MATERIALS LET THE SOUND OF SILENCE BE HEARD

.....special feature article

published in **PRODUCT ENGINEERING**

as the result of editorial contact.

(page 1 of 2 pages)

Design engineering feature

Sound control materials let the sound of silence be heard

Lead, plastic foams, glass fibers, mineral wool used separately or in combination can quiet machinery to acceptable, minimal levels.

Many control materials either absorb sound, provide a barrier to prevent its transmission, or damp vibration. This is an oversimplified view of a highly complex subject, since often these functions are combined in one material or materials are combined to serve all three functions.

Though there is a lot more to solving today's noise problems than simply surrounding an offending noise producer with one of these materials, some progress has been made. From small outboard engines to giant hydraulic ships, from dental equipment to massive landmasses, sound control materials can muffle a variety of noise, rattles, thumpings, and hums.

For most problems facing the design engineer, some kind of material that absorbs sound waves will have to be included. Usually they are lightweight, cellular or fibrous. They do not com-

pletely block the passage of sound, but do hinder its flow. In breaking up the sound waves, the energy is converted into heat.

Sound absorbing materials also reduce sound reflections and consequent reverberations within a confined space. Foams and fiber materials can cut as much as 10 dB from the reverberating sound levels, when properly applied.

The most commonly used of these absorbents are glass and mineral wools. Many forms are available including batts, blankets and boards. And when combined with leaders, they can be made into rigid tiles.

They can also be compounded with special additives and sprayed on to surfaces or into cavities.

Fibrous forms have the disadvantage of having fragile surfaces and tend to "shed." On the other hand, they are low in cost, fire resistant, and versatile.

Another form of sound absorbing material is open, or semi-open-celled plastic foam. The best of these are the urethane foams, which can be made flame retardant by adding special ingredients to the basic polymer. Available in sheet

form, sound absorbing foams can be easily cut out for placement into almost any shape or size enclosure.

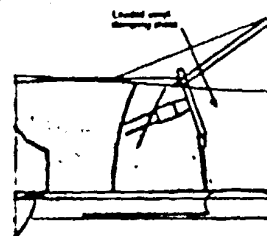
Foamed plastic and urethane, much more expensive than plastic foams, are also applied to some sound problems. They are used especially in high temperature applications, such as in aircraft engines and in laboratory equipment.

Lead is best. Among sound barrier materials, there is none to discuss first. Lead is the best and the most widely used. Lead is malleable, limp, and impermeable to air. Thus, it closely approaches the ideal sound barrier. Moreover, lead sheet is easily worked with simple tools and can be crimped, folded, and molded to provide an air-tight sound-tight seal around machinery and most shapes.

The Lead Industries Association and the International Lead Zinc Research Organization (ILZRO) have conducted long-term research and development programs to exploit lead's full potential as a silencer. Besides developing new forms and accumulating extensive statistical data, these groups have also explored new applications.



Absorption characteristics of various sound control materials are checked by soundproof techniques. Different sound sources are checked in impedance tubes.



Passenger compartment of experimental car (ILZRO's Z-79) is shielded from

Product Engineering, October, 1959

SOUND CONTROL MATERIALS LET THE SOUND OF SILENCE BE HEARD

(Page 2 of 2 pages)

Design engineering features

An example is Ruff's 2x 75 durometer of several years ago. Primarily a shock absorber for new applications, the super sports car incorporated sheet lead in door panels and on the floor as a means of quieting the passenger compartment.

Sheet lead is available in weights ranging from 1/4 lb./sq. ft. (1/4 in. thick) to 8 lb./sq. ft. (1/4 in. thick). In sheet form it is easily bonded with elastomeric adhesives to brass, wood, and metal.

Lead is also provided, metal with flexible plastic, then laminated to a glass fiber or other back up cloth. The plastic, usually polyvinyl chloride, adds strength and durability.

Loaded plastics are either bonded to noise generating surfaces or used as enclosures themselves in the form of car-

peters. The plastic sheets are available in weights ranging from 1/4 to 5 lb./sq. ft. and their lighter weight makes them less efficient than sheet lead, and they are very effective when properly employed.

One of the most efficient ways to control noise is by combining sound absorbing foam with sound barriers. One company specializing in this composite is Soundcoat Co. (Brooklyn, N.Y.).

Typical of these systems underfoot is a thin lead sheet between two layers of polyurethane foam. The laminated composite is attached to the inner wall of machinery enclosures. An adhesive with a rubber, asphalt, or epoxy base bonds the system to almost any wall surface.

Boost the "test." According to Soundcoat's president, Joseph Man-

Another effective combination of materials was applied to the primer seal on a gas turbine driven hydraulic ship, the Deacon. Because weight was at a premium, a lightweight loaded plastic was installed on the engine side of a sound barrier. The sound barrier consisted of two perforated aluminum sheets with a glass fiber in between the sheets for absorbing high frequency sounds.

Vibration dampers. The other kind of sound-control material soothes noise by damping vibration. Materials for this purpose are either sheet or paste, and are based on epoxy, latex, or asphaltic chemicals.

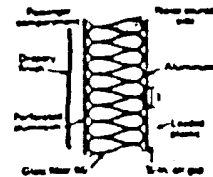
The asphaltic materials are the cheapest and are widely used in undercoats and other areas where vibration induced noise is a problem. Viscoelastic foam materials serve the same purpose, but are used more in stationary applications, because they are easily covered or covered over with additional coats when necessary. The epoxy materials, usually travelable mixtures and fairly expensive, are for severe environments or high humidity.

All of the vibration damping materials provide increased frictional resistance to the vibration of structures exposed to mechanical vibration or shock. Thus, they are designed to reduce vibration amplification at structural resonances.

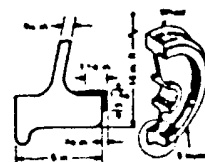
One of the most impressive uses suggested recently for vibration damping materials is on railroad wheels. To prevent the characteristic high screaming sound, a 5-in. thick forged wheel was treated with a circular segment of a special urethane elastomer compound approximately to the thickness of the wheel section. The treatment reduced noise during shanty turns by 35 db.

Manufactured plastics. Besides materials designed specifically for controlling noise, there are many other ways that materials can inhibit unwanted noise. Plastics are especially effective in mechanical operations in which unwanted noise. Plastic gears, for example, installed in business equipment and computers effectively cut down on the rattling and whirring that would otherwise occur with metal gears. Larger plastic gears are now being applied in heavy machinery, too. An outstanding example is in a paper mill rewinding machine where nylon gears have cut noise by 10 db.

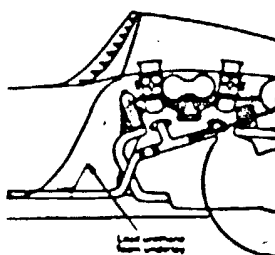
Plastics before replacing metal gears in an automatic screw machine have shown similar advantages. The plastics before cut noise from 6 db to 14 db, in a test demonstration.



Soundproofing layer muffles approach of subway noise. Material is DYAD elastomer.



Hydraulic ship is quieted with sound loaded vinyl and fiberglass.



Lead sheet under foam muffles noise from subway.

Product Engineering, October, 1970

Mining Journal—November 24, 1972

MINING
MARKET
NOV 24 1972MINING
Week

NOV 17 1972

lead and zinc market

Lead Again Boosted as Major Noise Control Material

NEW YORK — Use of lead for sound attenuation — heretofore thought to be a major growth possibility for the metal, but disappointing up until now — is getting a big boost as a result of Occupational Safety & Health Administration (OSHA) noise control requirements, according to the Lead Industries Association here.

Lead is playing an increasingly important role in the leading materials for sound attenuation being inserted to reduce various commercial and industrial noise control problems in the U.S. and Canada, LIA said.

For years lead has been regarded as the most effective and most economical sound barrier material

for muffling severe noise pollution. That's why its slower-than-expected growth in sound attenuation applications has been so puzzling to industry researchers and marketing people.

Lead is being used to muffle in plant machinery and equipment to

comply with OSHA requirements. LIA said. "It is also being used to bring noise levels into compliance with both municipal and self-imposed industrial noise regulations."

Lead lead sound barrier applications involve either one

sound control products or specially designed sound control systems that are being installed as original equipment.

One lead-enclosed system developed to meet OSHA problems for a plant industrial noise control belongs to Maher Engineering, Des Plaines, Ill.

Maher developed a composite lead structural foam-aluminum machinery enclosure panel system that includes the use of two sheets

lead oxide, each weighing only a half pound per square foot to achieve machinery noise reductions of between 25 and 30 decibels, depending on how carefully the enclosure is installed and the original noise levels of the machinery involved.

Maher stated that this Maher system has already been ordered by several industrial companies, despite the fact it has only recently become available. LIA reported.

A related design for a composite structural machinery enclosure was developed by General Noise Control, Little Falls, N.J. General Noise constructed an "open-type" enclosure that also complies with OSHA to plant noise control regulations.

The open structure has already been used to enclose two 30-hp, straight-shaft pumps that run at over 250 strokes per minute. General Noise's development has been commercially installed at Jackson Electric Co., Kansas City, and was very encouraging, LIA reported.

Meanwhile LIA reported that other panel systems that run on lead sheet — one developed in the U.S. the other in Canada — are being used to decrease interior noise levels of industrial plants, through each can be used to solve a plant noise problem.

Building Panel Pro Eng. Buildings, Ltd., Norwalk, Conn., has developed a composite building panel containing two pounds per square foot of sheet lead.

The panels have already been used for roofing and siding to cut low frequency noise from company turbine-powered power plant stations.

Having received a Sound Transmission Class (STC) rating of 61 in accordance with ASTM specs, the panels decrease the turbine noise to an acceptable level at the property line of each of the two plants, LIA said.

In the U.S. Long Island Lighting Co. is reported to have solved an air exhaust plant noise control problem at its Northport, N.Y., plant, which is located in a quiet residential area.

The study outlined extremely noisy equipment and its associated exhaust is a new hybrid structural composite material panel system produced by the Universal Fabricated Products Division of Transue Inc., Chicago.

The Transue system incorporates single and double layers of one-pound per square-inch sheet lead to provide varying degrees of noise control.

LEAD
Role Against Noise

THERE IS NO DOUBT that lead has been hard hit since the passage of the U.S. and Canadian noise control laws, and perhaps even more so since the use of lead-enclosed lead in sound attenuation has been restricted to the production and marketing of lead from three separate lead in this field. They have also been coming to replace the use of lead in other applications.

There will certainly come some development in this latter report from a recent development in the U.S. that could completely do away with noise control. According to the Lead Industries Association of the U.S., this project arises from noise control requirements laid down by the Occupational Safety and Health Act.

The American Metal Works reports the LIA is remarking that "lead is playing an increasingly important role in the leading materials for sound attenuation being inserted to reduce various commercial and industrial noise control problems in the U.S. and Canada."

In terms of specific applications for lead as a sound control role, the LIA highlights the development by Maher Engineering of composite lead-foam phenolic material for sound attenuation panels for direct enclosure. Furthermore, panel systems incorporating lead to decrease interior noise levels of industrial plants are being developed in Canada and the U.S. One Canadian building panel system is being tested on many 1 to 100 ft of lead sheet. These have been used to shield and muffle two turbine driven turbo-propellers and one owned by a Canadian nuclear gas company.

Furthermore a U.S. power utility is said to have ordered a major exterior shield for a problem at Northport, N.Y., through use of a thermal-structural panel system produced by Transue, Inc. of Chicago.

special article prepared on the
use of lead in noise control
applications

...published in AMERICAN METAL
MARKET and reprinted in MINING
JOURNAL

Iron Age

A Chilton Publication/November 9, 1972

Soundproof enclosures

Made of aluminum and sound-deadening materials, these enclosures are for plant production equipment. Custom-built, the units will meet OSHA standards.



They can be tailored to fit any machinery configuration. Also, structural panels, sound-deadening materials and frame assemblies are available if the customer prefers to build his own unit. (Ray-

mond Metals supplies the aluminum. Maher Engineer Co., Des Plaines, designed the enclosures.)

Reductions of 25 to 30 decibels can be achieved with this unit.

SHEET LEAD FEATURED IN NEWLY DEVELOPED MACHINERY NOISE ENCLOSURE
.....published in IRON AGE, INDUSTRIAL EQUIPMENT NEWS, MACHINE DESIGN and as a special feature in DESIGN NEWS

41-34 INDUSTRIAL EQUIPMENT NEWS
DA 121,200

DEC 1972 (CIRCUIT BOARD)

955 MACHINE ENCLOSURES reduce sound, meet OSHA standards



Enclosures of aluminum and sound-deadening materials help meet environmental noise level requirements for manufacturing facilities. Company builds custom enclosures to satisfy OSHA standards and

fit any size machinery. In addition, anti-vibration panels, sound-deadening materials and frame assemblies are available to a customer who builds his own unit. Enclosures and structural panels are constructed of aluminum and connected from very light, rigid, extruded aluminum. Enclosures of 25 to 30 dB are possible. The 955 series materials give light weight, corrosion resistance, and high noise reduction. Completed panels are about 1 1/2 in. thick and panels for do-it-yourself installation are 2 by 4, 4 by 4, and 4 by 6 ft.

MACHINE DESIGN

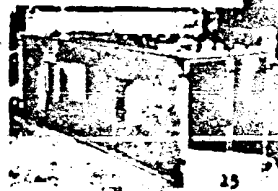
A CHILTON PUBLICATION

NOVEMBER 16, 1972

New Products

Lead/Foam Composite Stops Noise

Sound-level reductions of 25 to 30 dB are claimed for acoustic enclosures developed by Maher Engineering, Des Plaines, Ill. Secret is in the sound-deadening panels used in the enclosures. Each panel has an aluminum outer sheet, from 0.049 to 0.082 in. thick, that is lined with a 1.5-in. thick layer of lead-bearing urethane foam. Sandwiched in the foam are two sheets of lead sheets, each 0.0078 in. thick and weighing 6.5 lb/sq ft. The aluminum-framed panels are built in 2 x 4, 2 x 6, and 4 x 4-ft standard sizes and in various custom-built sizes and shapes.



Design News

ENVIRONMENT 1

Methods of Noise Control

Protection should be either of administrative or engineering type. If design fail to reduce sound levels to permissible limits, personal protective equipment must be provided. Engineering controls for noise include:

- using rubber or plastic bumpers or cushions to damp vibration
- increasing mass and stiffness to damp vibration
- using flexible mountings, bearings in pipe runs, shaft couplings, taking bearings in ducts and nozzles flanging to reduce sound transmission through joints
- using intake and exhaust mufflers
- designing fan blades to reduce turbulence
- completely enclosing individual machines
- using baffles
- substituting larger slower machines for smaller faster ones, also shut for single operation than process for hammers, rotating shears for shears shears, hydraulic for mechanical presses, and ball drives for gears
- substituting compressor for impact marking, bending for marking, hot for cold working, and pressing for rolling or forging
- using large size speed fans for smaller, high speed fans
- enclosing high speed machines in insulated rooms
- providing temporary sound-proof booths for operators or attendants of any of these machines



Sound insulated enclosures can avoid need to redesign existing equipment. Portions of sheet lead sandwiched in structural or polyurethane foam, with double gasketing, can achieve reductions of between 25 to 30 dB, depending on installation and original noise levels. Enclosures are available in standard sizes and can be custom-built. Sheet materials, including lead vinyl and sheet lead, can be combined with various adhesives and attachment schemes. Lead Industries Inc. and Hyster Engineering Co.

SHEET LEAD FEATURED IN NEWLY DEVELOPED MACHINE NOISE ENCLOSURE PANEL SYSTEM

.....published as part of special

Environmental One issue of DESIGN NEWS

Special full lead, built-in-baffle testing of low high speed drive units at 24,000 to 40,000 rpm measures generated noise and vibration. Unit is installed on gas turbine driven at 5,000 rpm to drive compressor at 10,000 rpm. Noise is tested to quality units of less than 85 dB with octave band noise of less than 85 dB. All measurements are taken with analyzer, graphic level recorder and microphone. (Phonograph Gear Corp.)

The cooperation of the following organizations is greatly appreciated:

AREA OF NOISE APPLICABLE ORGANIZATIONS
OILCO CORP.
SUNCO INC.
SHELL CO.
SHELL CORP.
A Division of Gulf + Western Industries, Inc.
SHELL INDUSTRIES
GULF OF LULU CORP.
ENVIRONMENTAL PROTECTION AGENCY
Environmental Protection Agency

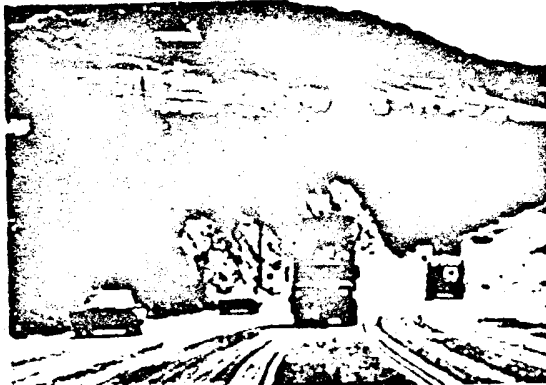
PHONOGRAPH GEAR CORP.
GULF OF LULU CORP. & CO., INC.
PHONOGRAPH GEAR CORP.
GULF OF LULU CORP.
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STANDARD
METAL MARKET
BY F. B. B. B. B.
B. B. B. B. B.

NOV 29 1972

B. B. B. B. B.



PAVEMENT MARKINGS separate opposing directions of traffic, show and are often used to denote road edges. If the 1973 National Highway Safety Act is passed, about \$40 million will be allocated to provide the materials, paint and equipment to mark approximately 800,000 miles of roadway. Part to be used will be chrome yellow, which contains about four pounds of lead per gallon. If it takes 14.4 gallons of paint for one mile of average four-lane highway.

Key Highway Marking Programs to Use Chrome Yellow Paint Containing Lead

NEW YORK — Lead-containing chrome yellow paint is expected to play a major role in two highway pavement marking programs that are key elements of a proposed nationwide, Federally-funded highway safety program.

Over the course of a number of years, perhaps as much as one million tons of lead could be used in the programs.

The nationwide highway safety program would result from passage of the Highway Safety Act of 1973, which is expected to be passed early in the next session of Congress.

The two highway pavement marking programs — which will cost a combined \$24 million — are considered of priority status from among the more than a dozen highway safety programs that would be authorized by the Act.

Lead Industries Association here, with a vested interest in what the Act could mean to the domestic lead market, says the two highway programs were developed to help decrease "the staggering 14.4 million vehicular traffic accidents that resulted in 18,000 deaths, 2 million disabling injuries and more than \$13 billion in property damage" in the U.S. during each of the past two years.

before passage of the Act.

Other research programs that would be authorized could cost in the neighborhood of \$1.5 billion in the years ahead, it is reported.

In terms of lead usage itself, LIA said it takes about 14.4 gallons of chrome yellow paint to paint one mile of average four-lane highway, and there are about four pounds of lead per gallon of chrome yellow.

The first project that would be authorized by the Act is a special pavement marking program that will utilize "highway yellow" or lead chrome, a special color standard that has been specified for all customary highway traffic control devices, including signs.

Chrome yellow (lead chrome) is the yellow paint pigment that most readily meets the lead standard color requirement, said LIA. Yellow is known to be the most visible color to the human eye from among all those in the visible color spectrum.

But in addition, chrome yellow pigment possesses other important qualities for highway marking applications.

According to LIA, these include:
• Lead resistance to degradation by light, and
• Resistance to chemicals used to remove snow and ice from pavements.

In carrying out the overall program, LIA says it is estimated that 800,000 miles of two-lane roads will receive yellow centerline markings and the approximate cost will be \$40 million. Additional funds will be earmarked for more yellow pavement markings on rural and township roads.

Major chrome yellow could approach 1,200,000 under the two

PROPOSED NATIONWIDE HIGHWAY SAFETY
PROGRAM TO INCREASE USE OF CHROME
YELLOW PAINT

.....published in AMERICAN METAL
MARKET (first publication of this
feature article)

**STAINED GLASS -- THE ART FORM THAT
DOES ON -- FROM LEAD INDUSTRIES**

.....Feature article published in
NATIONAL GLASS BUDGET as the result
of editorial request

13-12 NATIONAL GLASS BUDGET
VOLUME 1, 1972

OCT 7 1972

LEAD INDUSTRIES

**Stained Glass -- The Art Form
That Goes On -- From
Lead Industries**

If anyone has any doubts about the present vitality of the stained glass market, he may be surprised to learn that the manufacture of stained glass is estimated to exceed \$25 million annually. So an old art form that began as an architectural adjunct in the Middle Ages, all its own with its perfection by the designers of religious institutions, is still very much with us.

By now, of course, stained glass has broadened its scope. Private homes, commercial buildings, retail stores, schools, and subsequently was elevated to a plane and a wide variety of other establishments can be found

with stained glass today. It's important to add that the glass is being used as a significant decorative item and not just as a stained window door.

Lead, of course, is synonymous with stained glass. Besides being the carrier for the glass itself and the shape of the design in question, the lead is used in various thicknesses and proportions to the glass to give added definition, shape, and depth to the design.

The actual process of putting together a stained glass window has varied little since the 13th century when the windows of the great European cathedrals were made. A life size black and white "cartoon" of the design is made. The cartoon is cut in pieces, each one representing a different piece of stained glass. The glass itself is cut using the cartoon as a pattern and a glazier puts the window together.

The glass is put in place and bound with plastic leading called comes. Finally each leading joint is soldered for strength. The lead comes are normally H-shaped to accommodate the insertion of the glass. The lead's pliability is a key factor in its use for stained glass—as well as its solderability and the beautiful patina it acquires with time.

A spectacular new technique, developed at a relatively recent date, involves soldering sculptured 3 ft. sheet lead overlays to the basic lead comes which ordinarily hold the stained glass in place. These overlays, formed in relief, are incised with carefully formed and located dies of varying widths which allow the light to shine through the richly colored glass during the day. The "halation" of light through first the glass and then through these dies allows some of the beauty of the glass to be lost. At the same time the sculptured lead, covered with gold leaf, fulfills the representational function of the window in silhouette. It is at night, therefore, when the glass is normally dark that the interior light reflects the golden design with startling intensity. Thus the window functions as well by night as by day.

INDUSTRIAL BATTERY
DIVISION
CLEVELAND, OHIO
44115-1500

AUG 1972

See a new 16-page brochure describing the performance and benefits of electric battery-powered, in-plant trucks. Includes a cost comparison calculator. Lead Industries Association, Inc.

Example of publication of
Lead Industries Association, Inc.
literature availability announcements -
"Why You Should Specify Electric
Battery Powered Lift Vehicles"
....published in 11 magazines

INDUSTRIAL BATTERY
DIVISION
CLEVELAND, OHIO
44115-1500

OCT 1972

"Lift Trucks Electrically" is a Lead Industries Association brochure of the economics of operating lead acid battery-powered industrial electric trucks. It contains actual performance reports from users of both internal combustion-powered and electric trucks.
For your copy write 197 on postcard.

21-21 FOOD IN CHARGE
NO. 2426 (242)

AUG 1972

Lead Industry bulletin promotes electric trucks

Transporter - The Lead Industries Association has published a new 16-page bulletin, "Why You Should Specify Electric Battery Powered Lift Vehicles". It lists the benefits of operating lead acid battery-powered in-plant electric trucks.

The brochure includes performance reports from users of battery trucks across Canada as well as those from internal combustion powered trucks. It discusses operation and maintenance costs, environmental considerations, safety and efficiency. A series of photographs are included to show the potential savings by switching to electric trucks. The cost of owning, operating and maintaining in-plant trucks.

Market Development, Chemical Ltd., 1800 West George St., Vancouver, B.C. V6G 1A1.

4-18 BATTERY BOMB
NO. 2426

SEP 1972

755
IN-PLANT INVESTIGATION

The Lead Industries Association, Inc. has just released a two-page report of an article dealing with the establishment of limits of carbon monoxide concentrations for in-plant atmosphere by various public health agencies. The article covers the results of CO in-plant investigations made by the state health departments of Michigan, New Jersey, Hawaii and others.

Permissible in-plant CO levels for enclosed areas are discussed and cost estimates are given for ventilation systems required to maintain permissible levels when using either gasoline or propane-powered, internal combustion industrial trucks. Extra ventilating equipment is not required when using lead acid battery-powered trucks as in-plant sources.

Copies of the report, "In-plant electric get new sales edge" may be obtained by writing to Lead Industries Association, Inc., 292 Madison Avenue, New York, N.Y. 10017.

4-18 BATTERY BOMB
NO. 2426

JUL 24 1972

Performance data shows "why you should specify electric battery powered lift vehicles" in two bulletins from Lead Industries Assn.

INDUSTRIAL BATTERY
DIVISION
CLEVELAND, OHIO
44115-1500

OCT 1972

CARBON MONOXIDE LIMITS INVESTIGATION

Report gives the permissible in-plant CO levels determined by several state health departments. Includes cost estimates for ventilation systems required to maintain permissible levels when using either gasoline or propane powered, internal combustion industrial trucks. Lead Industries Association.

Circle 251 on Reader Service Card

4-18 BATTERY BOMB
NO. 2426

SEP 8 1972

POWELL LIFTS A 16-page bulletin illustrates a line of battery-powered industrial electric trucks with actual performance reports from coast-to-coast users of both internal combustion powered and electric trucks. Topics include operation and maintenance costs, environmental advantages, safety, and efficiency. Lead Industries Association, Inc.
Circle 197 on Reader Service Card

AMERICAN BATTERY
DIVISION
ATLANTA, GA
30303-1500

SEP 1972

Economics of Electric Trucks Described

The Lead Industries Association, Inc. has just published a new two-color, 16-page bulletin on the benefits and economics of operating lead acid battery-powered industrial electric trucks. Entitled "Lift Trucks Electrically," the booklet contains actual performance reports from coast-to-coast users of both internal combustion powered and electric trucks.

The new booklet discusses such topics as operation and maintenance costs, environmental advantages, safety and efficiency. Also included in the bulletin are a series of photographs that enable potential users to figure the cost of owning, operating and maintaining in-plant trucks, as well as providing a direct comparison of these factors between IC engine-powered and electric trucks.

For more information, call number 19

41-208 HANDLING & SHIPPING
NO. 2426

OCT 1972

CARBON MONOXIDE LIMITS INVESTIGATION

Report gives the permissible in-plant CO levels determined by several state health departments. Includes cost estimates for ventilation systems required to maintain permissible levels when using either gasoline or propane powered, internal combustion industrial trucks. Lead Industries Association.

Circle 251 on Reader Service Card

21-21 FOOD PROCESSING
NO. 2426

OCT 1972

Economics of operating lead acid battery-powered electric trucks is discussed in booklet from Lead Industries Assn. Topics such as operation and maintenance costs, environmental advantages, safety and efficiency are discussed. Booklet L-14 will be sent.

Northwest Mine News

Outlook for Zinc Called "Bullish"

over the last several years. The
market has been consistently
strong.

A new development used to
hold great promise for the fu-
ture of the market in "superma-
terials" - but enough to be con-
sidered a market was found. The
new alloy is said to be strong
enough to stand temperatures to
replace steel in various appli-
cations.

SEP 27 1972

Report On Lead Market Terms Industry Healthy

year through 1978 while production will increase by two per cent.

If the Environmental Protection Agency's standards are met, by next, best trucks in well deserve to about ten a year by 1978.

from last year's \$40,000 tons.

"Exhaust" has shown that gas-contrasted shipping can be accomplished in about one-tenth the time of today's shipping devices and, at the same time, battery life can be extended in certain cases nine times over today's normal battery life." Inaba said.

"Free World supply and Demand For Lead
And Zinc Through 1975"

PURCHASING
NEW YORK, N. Y.
R. R. WHEAT 22,000

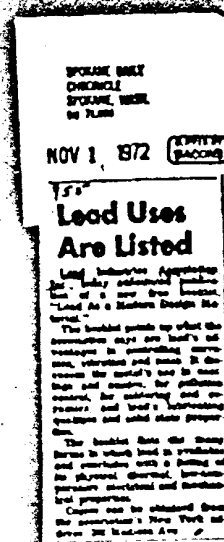
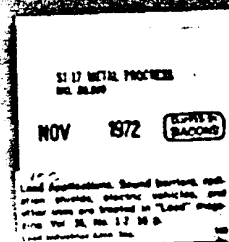
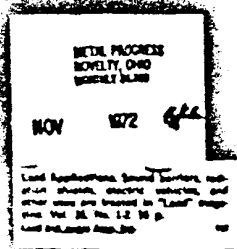
SEP 19 1972

Lead in balance, zinc barely adequate, says panel

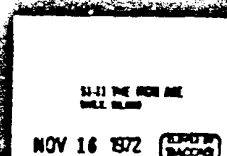
Richard D. Munkittrick of American Smelting & Refining Co. predicted that lead consumption in the Free World would increase about 2.5% annually between 1971 and 1975—a bit more slowly than in the past four years, when the annual growth rate averaged 2.6%. Munkittrick said the



The song comes in at annual production of steel metal. We forecast a growth of about half a million tons total, or about 2% a year. And while at the start of 1971 the industry had an estimated 30% surplus of production capacity, this margin will be reduced by another closings and increased production. After this year the margin of surplus capacity will be about 700,000 tons, compared to 1.2 million at the start of '71. Allowing for strikes and other possible interruptions, most smelters will probably



Examples of publication of
Lead Industries Association, Inc.
literature availability announcements....
"Lead...As A Modern Design Material"
....published in 6 magazines

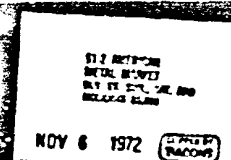


Lead in modern design

Lead, as a modern design material, offers advantages in corrosion resistance, vibration and sound control and radiation resistance. Use it for bearings, shields, for pollution control and for electrical energy sources. Lead for soldering and brazing is also discussed as well as its lubricating qualities.

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Circle 1 on Inquiry Card

IRON AGE, November 16, 1972



Lead in Pollution Control?

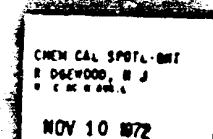
NEW YORK - The lead in pollution-control? That's exactly what Lead Industries Association has in recommending in its recent and updated edition of its eight-page booklet entitled "Lead...As A Modern Design Material".

According to LIA, lead's outstanding resistance to sulfur compounds makes it a natural for heavy electrostatic and acid mist precipitators and gas scrubbers. And it stands up well to sulfuric acid.

The properties, forms and design applications of lead are highlighted in the updated 1972 booklet, with most of the emphasis placed on new outside batteries and pollution abatement.

The booklet's emphasis is corrosion control, vibration and sound control, radiation resistance, coatings and shields, soldering and brazing, and lubricating applications are also discussed along with a listing of the many forms in which lead is available: sheet and bar, malleable, castings, laminations, bonded sheets, powder, shot, waste, alloys, compounds and mixtures.

The booklet concludes with a listing of the physical, chemical, low-temperature, electrical and mechanical properties of lead.



A New 8-page Booklet published by Lead Industries Assn., replacing 8-yr-old brochure, lists useful properties of lead & highlights advantageous use of the heavy metal for corrosion resistance, vibration & sound control, radiation shielding, soldering, electrical uses, & other applications.