

Monsanto

MONSANTO INDUSTRIAL CHEMICALS CO.
800 N. Lindbergh Boulevard
St. Louis, Missouri 63166
Phone: (314) 684-1000

August 3, 1973

Dear Sir:

In February, 1971 we announced the reformulation of our Pydraul^R industrial fluids to eliminate the use of polychlorinated biphenyls (PCBs) as components of these fluids. Since then we have reviewed our formulations and taken further steps to remove all chlorinated compounds from our Pydraul^R fluids. Pydraul^R fluids containing chlorinated materials have not been sold since mid-1972.

Recently the Food and Drug Administration published in the Federal Register (Vol. 38, No. 129, pgs. 18096-18104, July 6, 1973) a final rule-making order regulating the sources by which polychlorinated biphenyls (PCBs) may contaminate animal feed, food, and food-packaging materials during manufacturing, handling and storage, and limiting the levels of PCBs that may be present in animal feed, food, and food packaging materials as a result of unavoidable, environmental contamination. Attached is a copy for your use.

Because you may have purchased Pydraul^R fluid prior to our changeover activities in mid-1972 which may have contained PCBs, you may wish to review your procedures and inspect your facilities at this time to insure that your operations are in compliance with the new regulation. To assist you in any investigations you may care to conduct, I have attached a list identifying the Pydraul^R fluids which contained chlorinated ingredients and those which do not.

Proper disposal of chlorinated materials requires high temperature incineration. Monsanto has installed a facility at its Sauget, Illinois plant and has made this service available to its customers. Information relating to this service is attached to help you should you decide to dispose of such materials in this manner.

a unit of Monsanto Company

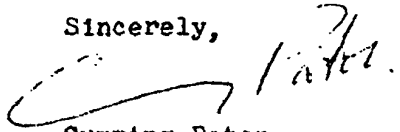
MCL002794

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Our current line of Pydraul^R fluids which do not contain chlorinated materials do not require this method of disposal.

I hope this information is useful to you. If I can be of further service please let me know.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Cumming Paton', is written over the typed name.

Cumming Paton
Product Manager
Fluids

/pep
Enclosures

PYDRAUL^R FLUIDS WHICH CONTAINED CHLORINATED INGREDIENTS

Pydraul ^R 90	Pydraul ^R 540B
Pydraul ^R 135	Pydraul ^R 625
Pydraul ^R 135A	Pydraul ^R 625A
Pydraul ^R 150	Pydraul ^R AC
Pydraul ^R 150A	Pydraul ^R AC-A
Pydraul ^R 230	Pydraul ^R AC-A Winter Grade
Pydraul ^R 230A	Pydraul ^R AC Winter Grade
Pydraul ^R 280	Pydraul ^R A-200
Pydraul ^R 312	Pydraul ^R A-200A
Pydraul ^R 312A	Pydraul ^R A-200B
Pydraul ^R 540	Pydraul ^R F-9
Pydraul ^R 540A	Pydraul ^R F-9A

CURRENT PYDRAUL^R FLUIDS (DO NOT CONTAIN CHLORINATED INGREDIENTS)

Pydraul ^R 10E (formerly Pydraul ^R 60)	
Pydraul ^R 29E LT	
Pydraul ^R 30E	
Pydraul ^R 50E	Pydraul ^R 230C
Pydraul ^R 65E	Pydraul ^R 312C
Pydraul ^R 90E	Pydraul ^R 540C
Pydraul ^R 115E	Pydraul ^R MC (formerly MCS 1330)

Monsanto

MONSANTO INDUSTRIAL CHEMICALS CO.
800 N. Lindbergh Boulevard
St. Louis, Missouri 63166
Phone: (314) 694-1000

INCINERATION SERVICE FOR PYDRAUL^R FLUIDS

This will confirm our conversation concerning incineration of your fluids. Enclosed are pre-addressed drum return labels marked "Disposal Only". The drum contents must be clearly indicated on each label.

To prevent leakage, please use return drums which meet DOT 17E specifications (55 gallon drums, 18 gauge, 2 bung head; 5 gallon drums, 24 gauge minimum). The outside of the drums must be clean, free of fluid and not leaking. Cleanup or other costs affecting the carrier which are related to fluids leaking from drums will be charged to the shipper.

Please show Monsanto Identification Number on the bill of lading and on each drum. The freight classification is Hydraulic System Fluid other than Petroleum and the release value is 50¢ per pound. Please ship all drums freight prepaid to:

Monsanto Industrial Chemicals Co.
Department 246, Incinerator
Sauget, Illinois 62201

Incineration charges for Pydraul^R fluids are 5¢ per pound. Please advise if you want us to invoice these charges against a specific purchase order number.

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MCL002797

Solids such as sawdust, rags or sludge and aqueous fluids cannot be handled in our incinerator. For these materials we suggest you check local authorities and your own environmental department for an approved disposal method. Personnel in our Sauget, Illinois, plant have been instructed to refuse receipt of drums containing these materials and to return them to the sender at the sender's expense.

Thank you for your cooperation. If you have additional questions, please phone me (314) 694-3354, or contact me by letter at the above address.

Sincerely,

W. N. MADDOX
Supervisor
Customer Service Center

Enclosures

federal register

No. 130—Pt. II—1

FRIDAY, JULY 6, 1973
WASHINGTON, D.C.

Volume 38 ■ Number 129

PART II



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

■

POLYCHLORINATED BIPHENYLS

**Contamination of Animal Feeds, Foods,
and Food Packaging Materials and
Availability of Supplement to
Environmental Statement on Rulemaking**

MCL002799

Title 21—Food and Drugs

CHAPTER I—FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

SUBCHAPTER A—GENERAL

SUBCHAPTER B—FOOD AND FOOD PRODUCTS
POLYCHLORINATED BIPHENYLS (PCB's)Contamination of Animal Feeds, Foods,
and Food-Packaging Materials

In the FEDERAL REGISTER of March 18, 1972 (37 FR 5105) a notice of proposed rule making was published limiting the sources by which polychlorinated biphenyls (PCB's) may contaminate animal feed, food, and food-packaging materials during manufacturing, handling, and storage, and limiting the levels of PCB's that may be present in animal feed, food, and food-packaging materials as a result of unavoidable, environmental contamination. The notice provided for the filing of comments within 60 days after the date of publication and this was extended to July 16, 1972 by a notice published May 18, 1972 (37 FR 10063).

In response to the notice, ninety-three comments were received from members of industry, trade associations, consumer groups and individual consumers.

The following is a summary of the provisions contained in the notice and the comments on these provisions received by the Food and Drug Administration:

1. Sections 3.93, 128.4, and 135.113. The notice included provisions which would prohibit the use of PCB-containing materials and equipment in animal feed, in food, and in food-packaging material manufacturing, handling and storage establishments, in order to preclude direct, accidental PCB contamination of animal feed, food, and food-packaging materials.

a. One comment suggests that since most industrial chemicals can be interpreted to be "harmful or deleterious", the phrase should be deleted as a criterion for PCB replacement. The Commissioner concurs with deleting the phrase "harmful or deleterious". The toxicity and other characteristics of fluids selected as PCB replacements must be adequately determined so that the least potentially hazardous replacement is used. In making this determination with respect to a given fluid, consideration should be given to (1) its toxicity; (2) the maximum quantity that could be spilled onto a given quantity of food before it would be noticed, taking into account its color and odor; (3) possible signaling devices in the equipment to indicate a loss of fluid, etc.; and (4) its environmental stability and tendency to survive and be concentrated through the food chain. The judgment as to whether a replacement fluid is sufficiently non-hazardous is to be made on an individual installation and operation basis. Accordingly, the appropriate amendments have been made in § 135.113(b) (3) (21 CFR 135.113(b) (3)), § 3.93(b) (2) (21 CFR 3.93(b) (2)), and § 128.4(b) (2) (21 CFR 128.4(b) (2)).

b. One comment argues that electrical capacitors and transformers should be exempt from the requirement that new equipment and existing equipment in establishments engaged in the processing of animal feed, human food, or packaging materials shall not contain PCB's, since no known substitute is available which offers the proper balance of characteristics (e.g., fire safety and design efficiency). In support of the comment, it is stated that both capacitors and transformers are constructed in sealed metal cases and are not normally installed in equipment or located in such a manner as to be in direct contact with the material being processed. The Commissioner of Food and Drugs agrees that there should be an exemption for the safe use of PCB's in electrical capacitors and transformers. The final order has been amended in § 135.113(c), § 3.93(c) and § 128.4(b) (3), to provide an exemption for electrical capacitors and transformers.

c. One comment contends that an effective date of 90 days following publication of the final order should be established since this time period would be required for the modification of existing plant equipment to accommodate PCB replacements. The Commissioner concludes that there is no justification for extending the effective date and the final order establishes an effective date of 30 days from the date of publication in the FEDERAL REGISTER.

d. One comment contends that with the replacement of PCB formulated heat exchange fluids with non-PCB fluids, some level of PCB residue is likely to remain in certain equipment. Therefore, the comment continues, the Food and Drug Administration should initiate studies for the purpose of establishing a finite allowable residual level. While it is true that some residue of PCB may remain in certain equipment, if the change is made in a reasonable manner and in good faith there should not be significant concentrations of PCB remaining. Without additional data it is not possible to set any specific limit for PCB concentration in the equipment fluids. Furthermore, the Commissioner has determined that no reasons exists for FDA to initiate studies to determine the extent of residual levels of PCB's in heat exchangers or to specify by regulations finite tolerances for such residual material at this time.

2. Section 121.2546. The notice included an amendment to the existing food additive regulations (21 CFR 121.2546) so as to exclude from use in food-packaging materials pulp from reclaimed fibers containing poisonous and deleterious substances which may migrate to the packaged food.

a. One comment contends that the language of the amendment is incomplete since it does not establish a limit or tolerance for poisonous or deleterious substances, such as PCB's, which may ultimately be found in the packaged food product. The Commissioner disagrees because the purpose of § 121.2546 is to regulate the use of reclaimed fibers containing poisonous or deleterious sub-

stances for use in the manufacture of food-packaging materials and, to the extent necessary, to prevent contamination of the packaged food product with these substances. Therefore, the regulation precludes the necessity of establishing tolerances for the packaged food product. The Commissioner agrees, however, the clarification of the amendment is needed in order to be consistent with regulations which permit the presence of what could otherwise be regarded as poisonous or deleterious substances at levels that have been proved to be safe in food-packaging materials. Therefore, the order is amended in § 121.2546 by adding the phrase "except as provided in regulations promulgated under Sections 406 and 409 of the Federal Food, Drug, and Cosmetic Act."

3. Part 122. The notice included the proposal to establish temporary tolerances under Section 406 of the Federal Food, Drug, and Cosmetic Act for unavoidable PCB residues in animal feed, certain foods and food-packaging materials as a result of environmental contamination.

a. One comment recommends that a zero tolerance for PCB's in foods and feeds should be established. The Commissioner rejects this recommendation. Animal feeds, certain foods, and paper food-packaging materials contain PCB's which, under present conditions of environmental contamination, are unavoidable. Current toxicological information does not support the necessity of establishing zero tolerances for these articles in order to protect public health since human exposure to dietary sources of PCB's is usually sporadic, non-systematic, and occasional. The "finite" temporary tolerances being established will provide the assurance that significant PCB levels are not contained in food and that human exposure to PCB's from dietary sources will be maintained at safe and minimal levels. Zero tolerances, therefore, are unwarranted and would unnecessarily deprive the consumer of a portion of his food supply and disrupt the Nation's food distribution system because a portion of fish, poultry, eggs, and milk and packaging used for food would be violative.

b. A consumer group's comment recommended lowering the PCB tolerances for human foods by a factor 5-10; while another comment recommended that the temporary tolerances should be based on toxicological data which would allow a level that is deemed safe rather than allow a level that can be reasonably achieved. The Commissioner disagrees with both recommendations. Section 406 of the act, which is the authority for establishing the temporary tolerances for PCB's, states that where the addition of a poisonous or deleterious substance to food cannot be avoided the Secretary shall promulgate regulations "limiting the quantity therein or thereon to such extent as he finds necessary for the protection of the public health", and also specifically states that the Secretary in setting such a tolerance shall take into account the extent to which use of the substance "cannot be avoided". The fact

that the tolerances are termed "temporary" is recognition that, in the future, there should be less PCB contamination which "cannot be avoided" and the Commissioner is authorized to reduce the tolerance levels accordingly. The temporary tolerance levels are based on an analysis of animal and human toxicological data and data on the occurrence of PCB's in the food supply as follows:

(1) *Animal toxicological data.* Data from long-term animal studies are available to show that the no-effect level in rats and dogs (for PCB's with 42, 54, and 68 percent chlorination) is 10 parts per million (ppm). Employing a 100 to 1 safety factor, the "no-effect" level for man would be 2.5 microgram (mcg)/kilogram (kg) body weight/day based on data derived from dogs, or 3 mcg/kg body weight/day from rats. Therefore, based on long-term animal studies, the allowable level of PCB ingestion in man would be approximately 175 mcg/day for a 70 kg individual.

(2) *Human toxicological data.* Human intoxication with Kanachlor 400, a PCB manufactured in Japan with 48 percent chlorine was noted when a heat exchanger leaked fluid into rice oil and was consumed by Japanese families in 1968. About 1,000 people were eventually affected. Typical clinical findings included chloracne and increased pigmentation, visual impairment due to hypersecretion of the Meibomian glands, and systemic gastrointestinal symptoms that included abdominal pain and disturbances in liver function. A few babies were born with decreased birth weights and skin discoloration which slowly regressed as the children grew in size, although the growth rate of males appeared to be somewhat slower than normal. Adult patients had protracted clinical disease with very slow regression of symptoms and signs, suggesting slow metabolism and excretion of this PCB in humans, probably involving a long biological half-life. Exposure levels to the oil were calculated to approximate, on the average, 18,000 mg per day. The oil itself was reportedly contaminated at a level of about 2,000 ppm. This level was derived from the known organic chlorine content of rice oil related to the known organic chlorine content of Kanachlor 400. The average total dose of PCB's causing an effect in the Japanese was reported to be 2,000 mg. The human data published by Karatsune, et al., *Fukuoka Acta. Med.* 23:117 (1971) established that the lowest level of PCB that produced an effect in man (using a 60 kg man) was 500 mg consumed over a period of 50 days at a rate of approximately 200 mcg/kg body weight/day. The effect level was based on overt symptoms rather than sensitive biochemical tests that might have demonstrated some effects at even lower levels. Employing a safety factor of 10 to 1 to go from an effect level in man to a permissible no-effect level in man allows for an ingestion of 20 mcg/kg body weight/day; or 1.4 mg/day for a 70 kg man based on a total period of exposure of 50 days (equivalent to the Japanese

incident). Since PCB's probably have a long biological half-life in man, an alternative toxicological analysis of the human data may be based on the assumption that ingested PCB's would continue to accumulate in tissues for a long period of time. Since 2,000 mg was reported to be the average total dose causing an effect in the Japanese, it is possible that 200 mg total dosage PCB's (applying a safety factor of 10 to 1 as above) may be tolerated over a much more protracted period of time without overt adverse effect if daily exposure is held to minimal levels. It would take 22 months of daily ingestion of 300 mcg of PCB's to arrive at a total ingestion of 200 mg. This would permit ingestion of 4 mcg/kg/day as derived from a 70 kg man. Since the lowest total dose producing an effect in man was 500 mg, a similar analysis leads to an allowable protracted ingestion of 1 mcg/kg/day as derived from a 70 kg man.

(3) *Dietary sources of PCB's.* The results of FDA total diet studies for fiscal years 1970-1973 show that quantitatively measurable residues of PCB's are equivalent to an intake of approximately 0.08 mcg/kg/body weight/day (or 4.2 mcg/day for a 70 kg man). Because of the sensitivity of the analytical methods used, PCB's may be present at levels too low to be detected. If lower levels could be measured, the dietary intake of PCB's from the total diet studies would probably show an increase. It should be recognized, however, that in rare instances some people could have more systematic exposures to PCB's in foods than those expected by eating a moderately well balanced diet such as represented by the total diet samples. Hence, there is a need for minimizing potential human exposures. The total diet studies indicate that PCB's most frequently occur in the food composite consisting of meat, fish and poultry (experience has shown that most of the PCB residues in this composite are in fish and, to a lesser extent, poultry) and in the food composite consisting of grain and cereal products (experience has shown most of the PCB residues in this composite are derived from paper packaging materials). FDA's food surveillance activities have shown that PCB's also occur in dairy products, eggs, and packaged foods, in addition to packaged cereal products.

(4) *Temporary tolerances for PCB's.* Using the human toxicological data described above, FDA concludes that for the short term, based on the lowest total dose producing an effect and estimated biological half-life of PCB's, current levels of PCB's in the diet represent no immediate hazard. This is also true for the average total dose causing an effect in the Japanese for long-term exposure. However, based on the most sensitive "Japanese patient" (i.e., lowest total dose producing an effect), the possibility of potential long-term hazards necessitates reduction of the levels of PCB's in food as soon as possible. In the interim, temporary tolerances are necessary to limit human exposure to those foods that may contain PCB's resulting from en-

vironmental contamination, which as a practical matter are presently unavoidable. Those foods, for which temporary tolerances are being established, include milk and dairy products, poultry, eggs, fish, and infant and junior food. Infants and young children consume a greater amount of food per kilogram of body weight and thereby have a proportionately greater exposure than do adults. A separate temporary tolerance for infant and junior food, therefore, reflects the possibility that undesirable exposures could result if combinations of certain PCB-contaminated foods comprise a major portion of this age group's diet. In order to minimize the overall dietary intake of PCB's, individual sources of PCB contamination must also be appropriately minimized. PCB's have been shown to occur in packaged food as a result of the PCB contamination of paper food-packaging materials. Limitations on the levels of PCB's in paper food-packaging materials are, therefore, necessary to minimize the amount of PCB's which may migrate to the packaged food. Since PCB's can be transmitted to and concentrated in edible portions of food-producing animals ingesting PCB-contaminated feed, animal feed represents another source of PCB's in the food supply. Limitations on the levels of PCB's in animal feeds and animal feed components are necessary, therefore, to minimize the frequency and magnitude of PCB residues in foods of animal origin.

The Commissioner concludes that the temporary tolerances being established will protect the public health from PCB's in food, but cautions that the temporary tolerances are not to be construed as "guidelines" permitting the consumption of foods containing these amounts of PCB's on a regular and consistent basis. Further, the temporary tolerances will be lowered as experience indicates that lower levels can be attained.

c. One comment recommends that FDA issue warnings to pregnant women who breast feed their babies to restrict their intake of fish to species that have been thoroughly monitored by FDA and found to be uniformly within the temporary tolerance. The basis for this recommendation is that consumption of PCB-containing fish and, for that matter other foods, may result in transfer and storage of PCB residues in human milk which in turn, the comment contends, would present a hazard to breast fed babies. The Commissioner concludes that such a warning is not warranted. On the basis of available, but limited monitoring data, most of which is unpublished, it appears that PCB levels in human milk would generally be less than approximately 0.05 ppm (whole product basis). Analysis of available toxicological data involving multigeneration reproduction studies in rat indicates that this level presents no immediate hazard to infants. Furthermore, this level is substantially less than the level of PCB's FDA will permit in the milk of dairy cows. The temporary tolerance being established for milk is 2.5 ppm (fat basis), which is

equivalent to 0.1 ppm (whole product basis). Therefore, a public warning as recommended is not supported by the scientific facts available at this time.

d. One comment recommends clarification of the term "PCB's" so as to distinguish between PCB-compounds of different chemical composition. The basis for this comment is the fact that PCB's are mixtures of chlorinated biphenyl compounds. Each component of the PCB mixture is a specific chemical compound having the basic biphenyl moiety and one to ten chlorine atoms. There are 208 different chlorinated biphenyl compounds. Each component of manufactured and sold in the United States under the registered trade name of Aroclor, followed by a four digit number (i.e., 1242; 1248; 1254; etc.). The term Aroclor signifies that the product consists of chlorinated biphenyls, chlorinated terphenyls, or a mixture of these compounds. The first two digits of the numerical part of the trade name indicate the molecular type (1200 signifies chlorinated biphenyl), while the last two digits give the weight percent of chlorine (42 signifies 42 percent chlorine). Since the physical and chemical properties of each Aroclor vary, the analytical behavior of each Aroclor will also vary. For PCB residue analysis, it is customary to determine the amount of PCB residue found by comparing the residue to a known quantity of the Aroclor it most nearly matches when separated into multicomponents on a gas chromatograph. Therefore, the Commissioner agrees that clarification of the term "PCB" is necessary for the analysis of food, animal feed and paper food-packaging materials for PCB residues. The compilation of FDA analytical methods to be used for enforcing the PCB tolerance that is available upon request contains instructions regarding this aspect of the recommendation. The Commissioner does not agree, however, that the tolerances for PCB's should distinguish between PCB-compounds of different chemical composition because toxicological data do not support the need to establish separate tolerances for each Aroclor. Therefore, the temporary tolerances will apply to the term "PCB" irrespective of which Aroclor or mixture of Aroclor is present as the contaminant.

4. Section 122.10(a)(1) and (2). The notice included the proposal to establish a temporary tolerance for PCB's in milk and dairy products at 2.5 ppm (fat basis).

a. One comment recommends that since FDA's previous action level for PCB's in milk and dairy products, which was set at 55 ppm (fat basis), was stated as adequate for protecting public health, the temporary tolerance for milk and dairy products should be kept at the same level. The Commissioner concludes that there is no justification for raising the proposed tolerance from 2.5 ppm to 5 ppm in the fat of milk and dairy products. The 2.5 ppm temporary tolerance takes into account current toxicological data and the level of PCB residues that is presently considered unavoidable. A recent FDA survey revealed that only

one sample of milk in 520 tested contained more than 2.5 ppm PCB in the fat, i.e., 0.2 percent of the total samples. Evidence also indicates that higher levels may be generally attributed to avoidable sources of contamination, such as the use of PCB coatings in dairy farm silos which caused PCB contamination of silage for dairy cows with subsequent transmission of PCB's to the milk of these cows.

b. One comment recommends the PCB tolerance be expressed on an "as is" basis because the fat content of dairy products varies and these foods are consumed "as is". The Commissioner rejects this recommendation. The butterfat is generally considered the most valuable constituent of milk. PCB's are fat soluble, and in the manufacture of various dairy products from milk, remain at a nearly constant concentration in the fat. The fat basis tolerance is therefore necessary to govern the level of PCB's in such products in preparing some other type of food. For example, butter (about 80 percent fat) made from milk containing levels of PCB's below tolerance would also be acceptable since the PCB concentration in the fat would be unchanged.

5. Section 122.10(a)(3). The notice included a proposal to establish a temporary tolerance for PCB's in poultry at 5.0 ppm (fat basis).

a. One comment recommends that since FDA's previous action level for PCB's in poultry, which was set at 5 ppm on the edible tissue, was stated as adequate for protecting public health, the temporary tolerance should be kept at that same level. The Commissioner rejects this recommendation. PCB contamination of poultry at levels in excess of the temporary tolerance being established has been attributed to the use of animal feed contaminated with PCB's as a result of industrial accidents, e.g., leakage of PCB's onto feed components. The Commissioner concludes that there is no justification for establishing a tolerance level that accounts for avoidable sources of contamination. The temporary tolerance of 5 ppm (fat basis) takes into account that this level of PCB is generally unavoidable because some poultry feeds contain unavoidable PCB residues that will transfer to and concentrate in the fat of poultry. Furthermore, current toxicological data supports this tolerance level.

b. One comment recommends that the tolerance for poultry be expressed on an "as is basis" since this would more closely relate to the total PCB intake from this food than would a tolerance established for poultry on a "fat basis". In response, the Commissioner finds that although the dietary intake of PCB's resulting from contaminated poultry was considered on an "as is" basis (whole tissue) in the development of the temporary tolerance level, expressing the temporary tolerance on a fat basis is preferred since PCB's are fat soluble and fat derived from poultry can be used as a separate food (e.g., soups, gravies, etc.). The fat basis tolerance, therefore, provides the assurance that poultry con-

tains acceptable levels of PCB's, irrespective of whether the whole tissue is consumed or the fat is consumed as a separate food.

6. Section 122.10(a)(5) and (6). The notice included the proposal to establish temporary tolerances for PCB's in finished animal feeds at 0.5 ppm and animal feed components (including fishmeal) at 5 ppm.

a. One comment recommends that the term "finished animal feed" be changed to "complete animal feed" since some finished feeds are further mixed with grains, by-products of grains, and other feed ingredients of plant origin before feeding. The Commissioner agrees that certain finished animal feeds such as feed concentrates, premixes, and supplements, often contain high levels of PCB's because they consist of a high percentage of animal-derived ingredients. At time of use, however, these articles are mixed with plant-derived ingredients which are not expected to contain PCB's. Thus, the final ration for the animal would not contain excessive levels of PCB's. The Commissioner concludes that for purposes of the PCB tolerance for animal feeds, clarification of the term "finished animal feed" is needed rather than a change in terminology. Therefore, the order is amended in § 122.10(a)(5) (21 CFR 122.10) so that the temporary tolerance for PCB's is applicable to finished animal feeds, except feed concentrates, supplements, and premixes.

b. One comment recommends a PCB tolerance of 1.0 ppm be established for animal feed components which are not of animal or marine origin. Since there has been no reported finding of PCB's (other than that which may be due to avoidable contamination during processing, handling, or storage) in animal feed components such as grains and by-products of grains, the Commissioner concludes there is no need at this time to establish a separate tolerance for PCB's in this category of animal feed component.

c. One comment recommends that the term "animal feed components" be qualified by the expression "including fishmeal and concentrates, premixes, and supplements". The Commissioner agrees with this recommendation and the order is amended in § 122.10(a)(6) so that the temporary tolerance for PCB's is applicable to animal feed components of animal origin (including fishmeal and other marine by-products) and animal feed concentrates, premixes and supplements.

d. The Commissioner finds that although there was no comment to change the proposed tolerance levels of 0.5 ppm for finished animal feeds and 5 ppm for animal feed components, current information indicates a lowering of these tolerance levels is warranted for the following reasons:

(1) Data from FDA conducted feeding studies show that the proposed temporary tolerance 0.5 ppm for finished animal feeds is incompatible with the temporary tolerances for poultry. White leg-horn hens exposed to a diet containing 0.5 ppm PCB's (Aroclor 1254) for 8 weeks

contained residues in excess of 5 ppm (fat basis) in the muscle (breast and thigh), dissectable fat, and liver of these animals. At a 0.2 ppm feeding level, the concentration of the PCB tissue residues in poultry was less than 5 ppm (fat basis). Data further indicate that continuous feeding of Aroclor 1254 at 0.5 ppm from day three to day forty-three post initial egg production can result in PCB residues only slightly less than 0.5 ppm in the eggs.

(2) Data from FDA surveillance programs and from industry reports indicate that PCB levels in finished animal feeds and in animal feed components are generally substantially less than the proposed tolerance limits. (a) Last year FDA conducted a survey of finished animal feeds for PCB's. The survey consisted of 1274 sample examinations representing various categories of animal feeds. The results show that 4.4 percent of the samples contained PCB residues. The highest reported level was 0.6 ppm PCB in feed intended for beef cattle. The average level for all samples tested was less than 0.1 ppm and the average level of the 56 samples that contained reportable levels of PCB's was less than 0.2 ppm. About 1 percent of the samples exceeded 0.2 ppm. (b) Animal feed components of animal and marine origin are expected to contain PCB's as a result of environmental contamination. During the past year, 32 samples of imported fishmeal were examined by FDA for PCB's. The results show that about 37 percent of the samples contained PCB residues. The highest level reported was 0.47 ppm. In addition, 153 fishmeal samples of domestic origin were examined during this period. The results show that about 48 percent of the samples contained PCB residues. The highest level reported was 2.1 ppm and the average was less than 1 ppm. (c) In the fall of 1971, industry conducted a survey of the PCB levels in rendered animal by-products used for feed ingredients such as hydrolyzed feather meal; meat and bone meal; fat and greases; and poultry by-product meal. The results of this survey which were published in "Feedstuffs," issue of July 3, 1972, show that of the 438 samples tested, the highest level of PCB found was 1.6 ppm in fat and greases. The average PCB level for the samples tested was less than 1 ppm. Other data that the FDA has received on the levels of PCB's in rendered animal by-products essentially confirms the results of this industry survey. Therefore, on the basis of the above, the Commissioner concludes that available evidence requires and justifies a reduction in the PCB tolerances for animal feeds and animal feed components. The order is thus amended in § 122.10(a)(5) and (6) to establish temporary tolerances for PCB's in finished feeds at 0.2 ppm and in animal feed components at 2 ppm.

e. One comment recommends that a tolerance of 5 ppm be established for PCB's in pet food. The Commissioner agrees in part with the comment. The proposal to establish a tolerance for animal feed was directed toward food-producing animals because the transmis-

sion of PCB's to the edible portion of animals ingesting PCB contaminated feed constitutes a potential hazard to human health. Further, the comment makes a reasonable recommendation since some pets may be able to safely consume levels of PCB's higher than 0.5 ppm. However, on the basis of available toxicological information, there is insufficient data for FDA to establish a tolerance for PCB's in feed for all types of pets and for other non-food producing animals. For this reason, studies will be initiated to obtain this information and, if warranted, FDA will issue a proposal to limit the level of PCB's in this category of finished animal feed. In the interim, the order is amended so that the temporary tolerances in § 122.10(a)(5) is applicable to only food-producing animals.

7. Section 122.10(a)(7). The notice included the proposal to establish a temporary tolerance for PCB's in fish (edible portion) at 5 ppm.

a. One comment recommends that a temporary tolerance be established for shellfish. The Commissioner agrees with this recommendation because shellfish also have been found to contain PCB's as a result of unavoidable, environmental contamination and it is also in the interest of public health to limit the level of PCB's in this food. Therefore, § 122.10(a)(7) is amended to include shellfish under the temporary tolerance of 5 ppm.

8. Section 122.10(a)(8). The notice included the proposal to establish a temporary tolerance for PCB's in infant and junior foods at 0.1 ppm.

a. One comment states that the level proposed cannot be achieved because of trace quantities of PCB's in certain foods and in paper food-packaging materials. The Commissioner concurs with this statement because information indicates that this level of PCB's cannot be avoided and that current analytical methodology is insufficient to enforce a tolerance of 0.1 ppm. Therefore, the final order is amended by revising the temporary tolerance for PCB's in infant and junior foods to 0.2 ppm.

9. Section 122.10(a)(9). The notice included the proposal to establish a temporary tolerance for PCB's in food-packaging materials at 5 ppm.

a. One comment recommends that plastic and other non-paper food-packaging material be exempt from the temporary tolerance. The Commissioner agrees with this recommendation because there is no evidence to indicate that PCB's occur in plastic or other non-paper food-packaging materials as a result of unavoidable contamination. For this reason, no basis exists for establishing a tolerance under Section 406 of the Federal Food, Drug, and Cosmetic Act for these articles. Therefore, the wording of § 122.10(a)(9) is revised to apply only to paper food-packaging materials. This exemption means that no PCB's whatever may be present, either as a result of purposeful addition or industrial accidents, in plastic and other non-paper food-packaging materials. The provisions in the Statement of General Policy or Interpretation under Part 2, which pro-

hibits the use of PCB-containing equipment and materials, are applicable to those establishments engaged in the manufacture, handling, and storage of plastic and other non-paper food-packaging materials.

b. One comment contends that no authority exists under Section 406 of the Federal Food, Drug, and Cosmetic Act for the establishment of temporary tolerances for PCB's in food-packaging materials. The Commissioner concludes that the establishment of temporary tolerances for PCB's in food-packaging material is consistent with the language and purpose of Sections 402(a)(3)(A) and 406 of the Federal Food, Drug, and Cosmetic Act.

c. One comment recommends the temporary tolerance be applied to the packaged food, rather than the food-packaging material. The Commissioner rejects this recommendation for the following reasons:

(1) Since the transfer of PCB's from packaging material to the food is dependent on time and conditions of exposure, tolerances based solely on the food would not provide adequate protection to the consumer. A packaged food analyzed at the time of packaging may be entirely free of PCB's, but by the time it reaches the consumer and is finally consumed it may have accumulated considerable quantities of PCB's if the packaging material is contaminated. A tolerance system in which analytical findings are so dependent on many variables such as time of sampling would not be reasonable or adequate. (2) In order to achieve compliance with a tolerance for packaged food, the level of PCB in the packaging has to be taken into account and limited to preclude the potential transfer of quantities of PCB's to the food that would cause the food to exceed its tolerance level. The fact that the level of PCB in packaged food is related to the level of PCB in its packaging, in effect, necessitate tolerance for both the food and its packaging. This would represent an obvious redundancy.

(3) Establishing a tolerance for packaged food would be inconsistent with the intent and meaning of section 406 of the Federal Food, Drug, and Cosmetic Act. The packaged food does not contain unavoidable PCB residues. The principal source of the PCB contamination of packaged food is the paper food-packaging material, which contain the unavoidable contamination. As such, the tolerance should deal with this article. Therefore, this source of food contamination should be limited so as to minimize the levels of PCB's that may migrate to the packaged food. (4) Failure to limit the level of PCB's in food-packaging materials would perpetuate the use of a known, avoidable source of PCB contamination of food.

d. One comment received from industry and related trade associations argues that the temporary tolerance for PCB's in food-packaging materials should be deleted or postponed until: (1) quality control test procedures and adequate analytical methods are developed to regulate production and insure compliance,

and (2) migration rates are established to take into account barrier effects, type of food, and package weight to food weight ratio. In response, the Commissioner finds that: (1) Although a trade association submitted data which they claimed indicates a lack of reliability in analyses of paperboard material, the data failed to show that uniform test methods were employed by the participating laboratories or that these tests were performed by laboratories with demonstrated capabilities in trace residue analysis. Further, an interlaboratory study conducted under the auspices of another trade association using FDA analytical methodology, supports the conclusion that current methodology is adequately sensitive and reproducible from laboratory to laboratory in order to insure compliance with the tolerance. (2) It is recognized that migration rates (actual) level of PCB in food resulting from the use of contaminated packaging are affected by factors such as barriers, type of food, package weight to food weight ratio, and time and conditions of exposure. Since FDA's primary concern is not the fact that paper food-packaging materials contain PCB's, but the fact that PCB's can migrate to the food from the packaging, the use of barriers which prevent migration is an acceptable alternative to limiting the PCB content of paper food-packaging material. For this reason, the final order is amended in § 122.10(a)(9) to exempt paper food-packaging materials from compliance with the temporary tolerance if the paper food-packaging material is separated from the food by a functional barrier impermeable to PCB migration. Metal cans and glass bottles are obvious examples of what constitutes a functional barrier impermeable to PCB migration. Data from industry sponsored studies have shown that materials such as polyvinylidene coated paper and glassine can, to varying degrees, prevent or reduce PCB migration under test conditions which would favor migration. FDA would not object to the use of flexible materials and other materials as barriers provided there is no evidence of migration of PCB's to the food. At this time, however, there is insufficient information for FDA to list as part of the regulation those materials that are considered functional barriers. The other factors mentioned above which affect migration rates may also be important considerations and should be thoroughly studied. In the interim, the temporary tolerance for paper food-packaging materials and the exemption to this temporary tolerance are considered necessary to assure the consumer that packaged food is not being contaminated with PCB's to an avoidable degree.

e. One comment states that the establishment of temporary tolerance for PCB in paper food-packaging materials is unwarranted for public health reasons because available scientific evidence shows that Aroclor 1242 (predominant PCB found in paper) is not persistent and cumulative, and thus will not present a chronic toxicity problem. Although data indicates that some components of Aro-

clor 1242 are metabolized in biological systems more rapidly than the higher chlorinated Aroclors, there is no information available which describes the composition, toxicity, and fate of the metabolic products. The absence of Aroclor 1242 residues in human and other animal tissue and in the environment is not a sound basis from which to argue that no hazard exists from the ingestion of Aroclor 1242. The possibility exists that Aroclor 1242 is converted to alteration products which may be more toxic than the original compounds, but which are not detectable by current analytical methods. Further, available data from chronic feeding studies with rats and dogs fail to substantiate claims that Aroclor 1242 does not represent a toxic substance or that it differs in toxicity from the higher Aroclors. The Commissioner concludes that the temporary tolerance for paper food-packaging materials will apply to the term "PCB" irrespective of which Aroclor is present as the contaminant.

f. Several manufacturers and trade associations recommended that the temporary tolerance for PCB's in food-packaging materials be modified so that the tolerance is expressed as "0.265 mcg/square centimeter in that portion of the package from which migration to the food can reasonably be expected", rather than using "parts per million" terminology. The Commissioner believes that this would not be a practical alternative because: (1) Expressing the tolerance for the weight of PCB residues in terms of unit area of packaging material rather than unit weight of packaging material assumes that PCB's are uniformly distributed throughout the food package and that any area of the packaging material selected for PCB analysis would be representative of the entire package. It is generally recognized that this assumption is not valid. (2) The migration of PCB from package material to food is considered to be chiefly a vapor phase phenomenon which is related to the concentration of PCB's in the packaging material. It is therefore not possible to ascertain which portion of the package would be expected to contribute to the PCB contamination of the packaged food. For these reasons, it is necessary to take into account the paper food-packaging material in its entirety as a potential source for the PCB contamination of the packaged food. Therefore, expressing the tolerance in terms of weight of PCB's per weight of packaging material as "parts per million" is a practical means to measure the "average" PCB level in the packaging.

g. One comment recommends that FDA include in the final regulation PCB analytical procedures employed by FDA in determining the extent of compliance with the established temporary tolerance for paper food-packaging materials. The Commissioner concurs in part with this recommendation and FDA will provide upon request the analytical methods to be used for enforcing the temporary tolerances for PCB's in paper food-packaging materials and the other articles for which tolerances are established in

§ 122.10(a). Omitting the methodology from the regulation will permit easier adoption of improved procedures as they are developed while having the analytical methods readily available to all interested parties.

h. One comment states that the temporary tolerance for PCB's for paper food-packaging materials will be detrimental to solid waste disposal programs, increase food packaging costs and result in an insufficient supply of packaging materials due to limitations of raw materials, and thus will significantly affect the quality of the human environment. The underlying basis for this statement is the fact that PCB's may occur in recycled paper because of the inclusion of some types of carbonless copy paper containing 3-5 percent PCB's into waste-paper stocks used in the manufacture of recycled paper. The comment contends that the temporary tolerance will have an adverse effect on the recycled paper industry and thus will cause the above environmental consequences. In response, FDA prepared in accordance with the National Environmental Policy Act of 1969 an environmental impact statement on the proposed rule making. FDA issued a Draft Environmental Impact Statement on May 11, 1972, a Final Environmental Impact Statement on December 21, 1972, and a Supplement to the Final Environmental Impact Statement (published concurrently with this order). In these statements, FDA asserted that information on the toxicity of PCB's necessitates limiting the levels of PCB's currently present in certain foods as a result of environmental contamination, as well as levels of PCB's in certain unavoidable sources of food contamination, i.e., PCB contaminated paper foodpackaging materials. FDA also asserted that the public health benefits derived from the rule making would outweigh any benefits that might be derived from industry-recommended alternative courses of action. These alternatives, which were considered and rejected by FDA as ineffective consumer protection measures, included: (1) The alternative of not regulating the PCB content of food-packaging materials; (2) The alternative of exempting Aroclor 1242 from the regulation; and (3) The alternative of regulating the packaged food rather than the packaging. FDA concluded in the statements that the rule making would have a significant, beneficial effect on the quality of the human environment. FDA did, however, re-evaluate the proposed level of 5 ppm as the temporary tolerance for PCB's in paper food-packaging materials. Data from the FDA survey of PCB's in foods and food packaging showed that the food portion of the samples with 5-10 ppm in paper food packaging contained the same range of PCB levels (0.1-0.6 ppm) as the food portion of the samples with 0-5 ppm in paper packaging. Samples with more than 10 ppm in the packaging contained higher levels in the food, ranging up to 3.7 ppm. The Commissioner concluded that this was the only acceptable alternative available and stated in the Final Environmental Impact Statement that the temporary tolerance for PCB's in paper

food-packaging materials would be changed to 10 ppm. (This order amends § 122.10(a)(9) to reflect this change.) Data provided by industry shows that levels of PCB's in paper food-packaging materials have diminished during the past year to the point that 93 percent or more of this material will contain 10 ppm or less PCB's. Therefore, FDA concluded that the temporary tolerance of 10 ppm and the exemption to this tolerance for paper food-packaging materials separated from the packaged food by a functional barrier will protect the public, while minimizing or negating the impact of the rule making on recycling programs. Furthermore, FDA indicated in the Supplement to the Final Environmental Impact Statement that it will explore with other federal agencies measures for eliminating PCB-containing carbonless copy paper from existing inventories. If feasible, this action would reduce the primary source of PCB's found in paper food-packaging materials permitting FDA to reduce the temporary tolerance, and eventually to eliminate the need for regulating this unavoidable source of PCB's in food.

Accordingly, pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 402(a), 406, 408, 701, 52 Stat. 1046 as amended, 1049, 1055-1056 as amended by 70 Stat. 919 and 72 Stat. 948, 72 Stat. 1784-1788 as amended; 21 U.S.C. 342(a), 346, 348, 371) and under authority delegated to the Commissioner (21 CFR 2.120) Parts 3, 121, 126, and 135 are amended and a new Part 122 is added, as follows:

PART 3—STATEMENTS OF GENERAL POLICY OR INTERPRETATION

1. The following new section is added to Part 3:

§ 3.93 Use of polychlorinated biphenyls (PCB's) in establishments manufacturing food-packaging materials.

(a) Polychlorinated biphenyls (PCB's) represent a class of toxic industrial chemicals manufactured and sold under a variety of trade names, including: Aroclor (United States); Phenoclor (France); Colphen (Germany); and Kanacolor (Japan). PCB's are highly stable, heat resistant, and non-flammable chemicals. Industrial uses of PCB's include, or did include in the past, their use as electrical transformer and capacitor fluids, heat transfer fluids, hydraulic fluids, and plasticizers, and in formulations of lubricants, coatings, and inks. Their unique physical and chemical properties and widespread, uncontrolled industrial applications have caused PCB's to be a persistent and ubiquitous contaminant in the environment, causing the contamination of certain foods. In addition, incidents have occurred in which PCB's have directly contaminated animal feeds as a result of industrial accidents (leakage or spillage of PCB fluids from plant equipment). These accidents in turn caused the contamination of food products intended for human consumption (meat, milk and eggs). Investigations by the Food and Drug Administration have revealed that a significant

percentage of paper food-packaging material contains PCB's which can migrate to the packaged food. The origin of PCB's in such material is not fully understood. Reclaimed fibers containing carbonless copy paper (contains 3 to 5 percent PCB's) have been identified as a primary source of PCB's in paper products. Some virgin paper products have also been found to contain PCB's, the source of which is generally attributed to direct contamination from industrial accidents from the use of PCB-containing equipment and machinery in food packaging manufacturing establishments. Since PCB's are toxic chemicals, the PCB contamination of food-packaging materials as a result of industrial accidents, which can cause the PCB contamination of food, represents a hazard to public health. It is therefore necessary to place certain restrictions on the industrial uses of PCB's in establishments manufacturing food-packaging materials.

(b) The following special provisions are necessary to preclude the accidental PCB contamination of food-packaging materials:

(1) New equipment or machinery for manufacturing food-packaging materials shall not contain or use PCB's.

(2) On or before August 8, 1973, the management of establishments manufacturing food-packaging materials shall:

(i) Have the heat exchange fluid used in existing equipment for manufacturing food-packaging materials sampled and tested to determine whether it contains PCB's or verify the absence of PCB's in such formulations by other appropriate means. On or before Sept. 4, 1973, any such fluid formulated with PCB's must to the fullest extent possible commensurate with current good manufacturing practices be replaced with a heat exchange fluid that does not contain PCB's.

(ii) Eliminate to the fullest extent possible commensurate with current good manufacturing practices from the establishment any other PCB-containing equipment, machinery and materials wherever there is a reasonable expectation that such articles could cause food-packaging materials to become contaminated with PCB's either as a result of normal use or as a result of accident, breakage, or other mishap.

(iii) The toxicity and other characteristics of fluids selected as PCB replacements must be adequately determined so that the least potentially hazardous replacement is used. In making this determination with respect to a given fluid, consideration should be given to (a) its toxicity; (b) the maximum quantity that could be spilled onto a given quantity of food before it would be noticed, taking into account its color and odor; (c) possible signaling devices in the equipment to indicate a loss of fluid, etc.; and (d) its environmental stability and tendency to survive and be concentrated through the food chain. The judgment as to whether a replacement fluid is sufficiently non-hazardous is to be made on an individual installation and operation basis.

(c) The provisions of this section do not apply to electrical transformers and condensers containing PCB's in sealed containers.

PART 121—FOOD ADDITIVES

2. In Part 121, § 121.2546(b) is amended by revising subparagraphs (1) and (2), as follows:

§ 121.2546 Pulp from reclaimed fiber.

(b) . . .
(1) Industrial waste from the manufacture of paper and paperboard products excluding that which bears or contains any poisonous or deleterious substance which is retained in the recovered pulp and that migrates to the food, except as provided in regulations promulgated under sections 406 and 409 of the Federal Food, Drug, and Cosmetic Act.

(2) Salvage from used paper and paperboard excluding that which (i) bears or contains any poisonous or deleterious substance which is retained in the recovered pulp and that migrates to the food, except as provided in regulations promulgated under sections 406 and 409 of the act or (ii) has been used for shipping or handling any such substance.

PART 122—UNAVOIDABLE CONTAMINANTS IN FOOD AND FOOD-PACKAGING MATERIAL

3. A new Part 122 is added as follows:

Subpart A—Definitions and Procedural and Interpretive Regulations

Sec.
122.1 Definitions and Interpretations.
122.2—122.9 [Reserved]

Subpart B—Industrial Contaminants in Food and Food-Packaging Material

122.10 Temporary tolerances for polychlorinated biphenyls (PCB's).

AUTHORITY: Secs. 402(a), 406, 408, 701, 52 Stat. 1046 as amended, 1049, 1055-1056 as amended by 70 Stat. 919 and 72 Stat. 948, 72 Stat. 1784-1788 as amended; 21 U.S.C. 342(a), 346, 348, 371.

Subpart A—Definitions and Procedural and Interpretive Regulations

§ 122.1 Definitions and Interpretations.

(a) The definitions and interpretations of terms contained in section 301 of the Federal Food, Drug, and Cosmetic Act shall be applicable to such terms when used in this part.

(b) Unavoidable natural, environmental, or industrial contaminants include any poisonous or deleterious substance added to any food where such substance cannot be avoided by good manufacturing practice.

Subpart B—Industrial Contaminants in Food and Food-Packaging Material

§ 122.10 Temporary tolerances for polychlorinated biphenyls (PCB's).

(a) Polychlorinated biphenyls (PCB's) are toxic, industrial chemicals. Because of their widespread, uncontrolled industrial applications, PCB's have become a persistent and ubiquitous contaminant in

the environment. As a result, certain foods and animal feeds, principally those of animal and marine origin, contain PCB's as unavoidable, environmental contaminants. PCB's are transmitted to the food portion (meat, milk, and eggs) of food producing animals ingesting PCB contaminated animal feed. In addition, a significant percentage of paper food-packaging materials contain PCB's which may migrate to the packaged food. The source of PCB's in paper food-packaging materials is primarily of certain types of carbonless copy paper (containing 3 to 5 percent PCB's) in waste paper stocks used for manufacturing recycled paper. Therefore, temporary tolerances for residues of PCB's as unavoidable environmental or industrial contaminants are established for a sufficient period of time following the effective date of this paragraph to permit the elimination of such contaminants at the earliest practicable time. For the purposes of this paragraph, the term "polychlorinated biphenyls (PCB's)" is applicable to mixtures of chlorinated biphenyl compounds, irrespective of which mixture of PCB's is present as the residue. The temporary tolerances for residues of PCB's are as follows:

- (1) 2.5 parts per million in milk (fat basis).
- (2) 2.5 parts per million in manufactured dairy products (fat basis).
- (3) 5 parts per million in poultry (fat basis).
- (4) 0.5 parts per million in eggs.
- (5) 0.2 parts per million in finished animal feed for food-producing animals (except the following finished animal feeds: feed concentrates, feed supplements, and feed premixes).
- (6) 2 parts per million in animal feed components of animal origin, including fishmeal and other by-products of marine origin and in finished animal feed concentrates, supplements, and premixes intended for food producing animals.
- (7) 5 parts per million in fish and shellfish (edible portion). The edible portion of fish excludes head, scales, viscera, and inedible bones.
- (8) 0.2 parts per million in infant and junior foods.
- (9) 10 parts per million in paper food-packaging material intended for or used with human food, finished animal feed and any components intended for animal feeds. The tolerance shall not apply to paper food-packaging material separated from the food therein by a functional barrier which is impermeable to migration of PCB's.

(b) A compilation entitled "Analytical Methodology for Polychlorinated Biphenyls, February 1973" for determining compliance with the tolerances established in this section is available from the Hearing Clerk, Department of Health, Education, and Welfare, Room 8-58, 5600 Fishers Lane, Rockville, MD 20852.

PART 128—HUMAN FOODS; CURRENT GOOD MANUFACTURING PRACTICE (SANITATION) IN MANUFACTURE, PROCESSING, PACKING OR HOLDING

4. In Part 128 by revising § 128.4 to read as follows:

§ 128.4 Equipment and utensils.

(a) *General.* All plant equipment and utensils should be (1) suitable for their intended use, (2) so designed and of such material and workmanship as to be adequately cleanable, and (3) properly maintained. The design, construction, and use of such equipment and utensils shall preclude the adulteration of food with lubricants, fuel, metal fragments, contaminated water, or any other contaminants. All equipment should be so installed and maintained as to facilitate the cleaning of the equipment and of all adjacent spaces.

(b) *Use of polychlorinated biphenyls in food plants.* Polychlorinated biphenyls (PCB's) represent a class of toxic industrial chemicals manufactured and sold under a variety of trade names, including: Aroclor (United States); Phenoclor (France); Colphen (Germany); and Kanador (Japan). PCB's are highly stable, heat resistant, and non-flammable chemicals. Industrial uses of PCB's include, or did include in the past, their use as electrical transformer and capacitor fluids, heat transfer fluids, hydraulic fluids, and plasticizers, and in formulations of lubricants, coatings, and inks. Their unique physical and chemical properties and widespread, uncontrolled industrial applications have caused PCB's to be a persistent and ubiquitous contaminant in the environment and causing the contamination of certain foods. In addition, incidents have occurred in which PCB's have directly contaminated animal feeds as a result of industrial accidents (leakage or spillage of PCB fluids from plant equipment). These accidents in turn cause the contamination of food intended for human consumption (meat, milk, and eggs). Since PCB's are toxic chemicals, the PCB contamination of food as a result of these accidents represents a hazard to human health. It is therefore necessary to place certain restrictions on the industrial uses of PCB's in the production, handling, and storage of food. The following special provisions are necessary to preclude accidental PCB contamination of food:

(1) New equipment, utensils, and machinery for handling or processing food in or around a food plant shall not contain PCB's.

(2) On or before September 4, 1973, the management of food plants shall:

(i) Have the heat exchange fluid used in existing equipment or machinery for handling or processing food sampled and tested to determine whether it contains PCB's, or verify the absence of PCB's in such formulations by other appropriate means. On or before Sept. 4, 1973, any such fluid formulated with PCB's must be replaced with a heat exchange fluid that does not contain PCB's.

(ii) Eliminate from the food plant any PCB-containing food-contact surfaces of equipment or utensils and any PCB-containing lubricants for equipment or machinery that is used for handling or processing food.

(iii) Eliminate from the food plant any other PCB-containing materials wherever there is a reasonable expectation

that such materials could cause food to become contaminated with PCB's either as a result of normal use or as a result of accident, breakage, or other mishap.

(iv) The toxicity and other characteristics of fluids selected as PCB replacements must be adequately determined so that the least potentially hazardous replacement is used. In making this determination with respect to a given fluid, consideration should be given to (a) its toxicity; (b) the maximum quantity that could be spilled onto a given quantity of food before it would be noticed, taking into account its color and odor; (c) possible signaling devices in the equipment to indicate a loss of fluid, etc.; and (d) its environmental stability and tendency to survive and be concentrated through the food chain. The judgment as to whether a replacement fluid is sufficiently non-hazardous is to be made on an individual installation and operation basis.

(3) For the purposes of this section, the provisions do not apply to electrical transformers and condensers containing PCB's in sealed containers.

PART 135—NEW ANIMAL DRUGS

5. The following new section is added to Part 135, Subpart B:

§ 135.113 Use of polychlorinated biphenyls (PCB's) in the production, handling, and storage, of animal feed.

(a) Polychlorinated biphenyls (PCB's) represent a class of toxic industrial chemicals manufactured and sold under a variety of trade names, including: Aroclor (United States); Phenoclor (France); Colphen (Germany); and Kanador (Japan). PCB's are highly stable, heat resistant, and nonflammable chemicals. Industrial uses of PCB's include, or did include in the past, their use as electrical transformer and capacitor fluids, heat transfer fluids, hydraulic fluids, plasticizers, and in formulations of lubricants, coatings, and inks. Their unique physical and chemical properties and widespread, uncontrolled industrial applications have caused PCB's to be a persistent and ubiquitous contaminant in the environment, causing the contamination of certain foods. In addition, incidents have occurred in which PCB's have directly contaminated animal feeds as a result of industrial accidents (leakage or spillage of PCB fluids from plant equipment). These accidents in turn cause the contamination of food intended for human consumption (meat, milk, and eggs). Investigations by the Food and Drug Administration have revealed that heat exchange fluids for certain pasteurization equipment used in processing animal feed contain PCB's. Although heat exchange fluids in such equipment are considered to be in "closed systems", leakage has occurred that resulted in direct contamination of animal feed with PCB's and subsequently resulted in the transfer of PCB's to human food produced by animals consuming the contaminated feed. The use of PCB-containing coatings on the inner walls of silos has resulted in the contamination of silage which has in turn caused PCB

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residues in the milk of dairy cows consuming the contaminated silage. Since PCB's are toxic chemicals, the PCB contamination of food as a result of these and other incidents represent a hazard to public health. It is therefore necessary to place certain restrictions on the industrial uses of PCB's in the production, handling, and storage of animal feed.

(b) The following special provisions are necessary to preclude accidental PCB contamination of animal feed:

(1) Coatings or paints for use on the contact surfaces of feed storage areas may not contain PCB's or any other harmful or deleterious substances likely to contaminate feed.

(2) New equipment or machinery for handling or processing feed in or around an establishment producing animal feed shall not contain PCB's.

(3) On or before Sept. 4, 1973, the management of establishments producing animal feed shall:

(i) Have the heat exchange fluid used in existing equipment or machinery for handling and processing feed sampled and tested to determine whether it contains PCB's, or verify the absence of PCB's in such formulations by other appropriate means. On or before Sept. 4, 1973, any such fluid formulated with PCB's must to the fullest extent possible commensurate with current good manufacturing practices, be replaced with a heat exchange fluid that does not contain PCB's.

(ii) Eliminate to the fullest extent possible commensurate with current good manufacturing practices from the animal feed producing establishment any PCB-containing lubricants for equipment or machinery used for handling or processing animal feed.

(iii) Eliminate to the fullest extent possible commensurate with current good manufacturing practices from the

animal feed producing establishment any other PCB-containing materials, whenever there is a reasonable expectation that such materials could cause animal feed to become contaminated with PCB's either as a result of normal use or as a result of accident, breakage, or other mishap.

(iv) The toxicity and other characteristics of fluids selected as PCB replacements must be adequately determined so that the least potentially hazardous replacement should be used. In making this determination with respect to a given fluid, consideration should be given to (a) its toxicity; (b) the maximum quantity that could be spilled onto a given quantity of food before it would be noticed, taking into account its color and odor; (c) possible signaling devices in the equipment to indicate a loss of fluid, etc.; (d) and its environmental stability and tendency to survive and be concentrated through the food chain. The judgment as to whether a replacement fluid is sufficiently non-hazardous is to be made on an individual installation and operation basis.

(c) For the purpose of this section, the provisions do not apply to electrical transformers and condensers containing PCB's in sealed containers.

(d) For the purpose of this section, the term "animal feed" includes all articles used for food or drink for animals other than man.

Any person who will be adversely affected by the provisions of §§ 121.254b and 122.10 of the foregoing order may at any time on or before August 6, 1973 file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 4-88, 5600 Fishers Lane, Rockville, MD 20852, written objections thereto. Objections shall show wherein the person filing will be adversely affected by the

order, specify with particularity the provisions of the order deemed objectionable, and state the grounds for the objections. If a hearing is requested, the objections shall state the issues for the hearing, shall be supported by grounds factually and legally sufficient to justify the relief sought, and shall include a detailed description and analysis of the factual information intended to be presented in support of the objections in the event that a hearing is held. Objections may be accompanied by a memorandum or brief in support thereof. Six copies of all documents shall be filed. Received objections may be seen in the above office during working hours, Monday through Friday.

Effective date. This order will become effective for foods, feeds, and paper food-packaging materials initially shipped in commerce after Sept. 4 1973 except as to any provisions of §§ 121.254d and 122.10 that may be stayed by the filing of proper objections. Notice of the filing of objections or lack thereof will be announced in the *Federal Register*. In the event § 122.10 is stayed by valid objections, pending a final regulation the Food and Drug Administration will enforce the levels stated in § 122.10 by seizing pursuant to sections 301 and 304 of the Act any food, feed, or paper food-packaging material shipped in commerce containing higher than the specified level of PCB's as adulterated in violation of section 402 of the Act.

(Secs. 402(a), 406, 409, 701, 82 Stat. 1046 as amended, 1949, 1955-1956 as amended by 70 Stat. 919 and 73 Stat. 948, 73 Stat. 1784-1788 as amended; 21 U.S.C. 812(a), 348, 348, 371)

Dated: June 21, 1973.

SHERWIN GARDNER,
Acting Commissioner of
Food and Drugs.

[FR Doc. 73-18449 Filed 7-5-73; 8:45 am]

NOTICES

**DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE**

Food and Drug Administration

POLYCHLORINATED BIPHENYLSAvailability of Supplement To Final
Environmental Impact Statement

The Commissioner of Food and Drugs published a notice in the *Federal Register* of December 21, 1972 (37 FR 28201) announcing that a statement entitled "Final Environmental Impact State-

ment—Rule Making on Polychlorinated Biphenyls" had been issued by the Food and Drug Administration.

Notice is hereby given that a statement entitled "Supplement to the Final Environmental Impact Statement—Rule Making on Polychlorinated Biphenyls" has been issued by the Food and Drug Administration. Copies of the supplement are available from the Office of the Assistant Commissioner for Public Affairs, Room 15B-42, or the Office of the

Hearing Clerk, Room 6-88, 5600 Fishers Lane, Rockville, MD 20852.

This notice is issued pursuant to provisions of the National Environmental Policy Act of 1969, Public Law 91-190 (sec. 102(2)(c), 43 Stat. 853; 42 U.S.C. 4332), and under authority delegated to the Commissioner (21 CFR 2.120).

Dated: June 21, 1973.

SAM D. FINE,
Associate Commissioner for
Compliance.

[FR Doc.73-13548 Filed 7-6-73; 8:45 am]

B2SC C. Paton

August 24, 1973

Pydraul Mailing

AUG 27 1973
B2SA J. F. STAPLETON
DND W. B. PAPAGEORGE

The attached letter and enclosures were sent to the attached list of Pydraul customers.

C. Paton

cs
Att.

Director of Purchases
(Hydraulic Fluids)
AAA Products, Inc.
P. O. Box 35482
Dallas, Texas 75335

Director of Purchases
(Hydraulic Fluids)
Academy Die Casting
47 Langstaff Avenue
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Director of Purchases
(Hydraulic Fluids)
A&A Die Casting Company
12901 South Western Avenue
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Director of Purchases
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Columbus, Ohio 43216

Director of Purchases
(Hydraulic Fluids)
Acme Machine Works
North 421 Sycamore Street
Spokane, Washington 99202

Director of Purchases
(Hydraulic Fluids)
Acme Masking Company
Route 1
Danville, Indiana

Director of Purchases
(Hydraulic Fluids)
Acme Printing Ink Company
2909 Chrysler Road
Kansas City, Kansas 66115

Director of Purchases
(Hydraulic Fluids)
Acrometal Products Inc.
616 Fifth Street North
Minneapolis, Minnesota 55401

Director of Purchases
(Hydraulic Fluids)
Acro Welder Manufacturing Co.
2900 West Green Tree Road
Milwaukee, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Advance Pressure Casting Corp.
276 Highway 53
Denville, N. J. 07834

Director of Purchases
(Hydraulic Fluids)
Action Manufacturing Co.
4567 Bermuda Street
Philadelphia, Penna. 19124

Director of Purchases
(Hydraulic Fluids)
Aerojet Liquid Rocket Company
P. O. Box 13222
Sacramento, California 94813

Director of Purchases
(Hydraulic Fluids)
Acushnet Process Co.
776 Belleville Ave.
New Bedford, Mass. 02745

Director of Purchases
(Hydraulic Fluids)
Aeroquip Corporation
Industrial Division
Van Wert, Ohio 45891

Director of Purchases
(Hydraulic Fluids)
Adams Carbide
24141 Ann Arbor Trail
Dearborn Heights, Mich.

Director of Purchases
(Hydraulic Fluids)
Aero Titanium Products
6510 Federal Boulevard
Lemon Grove, Cal. 02045

Director of Purchases
(Hydraulic Fluids)
Adams Carbide
3100 Industrial Road
Livonia, Mich. 48150

Director of Purchases
(Hydraulic Fluids)
Aetna Standard Engineering Co.
Park Avenue & Second Street
Ellwood City, Penna. 16117

Director of Purchases
(Hydraulic Fluids)
Agri Craft Co., Inc.
353 Dawson Drive
Camarillo, California 93010

Director of Purchases
(Hydraulic Fluids)
Airpath Instrument Company
13150 Gist Road
Bridgeton, Missouri

Director of Purchases
(Hydraulic Fluids)
Airco Industrial Gases
1965 East 28th Street
Lorain, Ohio 44055

Director of Purchases
(Hydraulic Fluids)
Air Products & Chem
17801 Arenth Avenue
City of Industry, California

Director of Purchases
(Hydraulic Fluids)
Airco Vacuum Metals
735 Ashby Avenue
Berkeley, California 94710

Director of Purchases
(Hydraulic Fluids)
Air Reduction Co., Inc.
Central Research Lab
Murray Hill, N. J. 07971

Director of Purchases
(Hydraulic Fluids)
Air Equip-Drill
P. O. Box 1664
Bakersfield, California 93302

Director of Purchases
(Hydraulic Fluids)
Airtex Products Division
United Industrial Syndicate, Inc.
Fairfield, Illinois

Director of Purchases
(Hydraulic Fluids)
Airoyal
43 Newark Way
Maplewood, N. J. 07040

Director of Purchases
(Hydraulic Fluids)
Ajax Forging & Casting Co.
205 Adair Street
Detroit, Michigan 48207

Director of Purchases
(Hydraulic Fluids)
Alco Machinery and Supply
#5 Beehman Street
New York, New York 10038

Director of Purchases
(Hydraulic Fluids)
Ajax Hardware Manufacturing Corp.
825 Ajax Avenue
City of Industry, Cal. 91747

Director of Purchases
(Hydraulic Fluids)
Allegheny Ludlum Steel Corp.
Box 5 Brackenridge, Penna.

Director of Purchases
(Hydraulic Fluids)
Ajax Magnethermic Corporation
P. O. Box 991
1745 Overland Avenue N.E.
Warren, Ohio 44482

Director of Purchases
(Hydraulic Fluids)
Allegheny Ludlum Steel
General Purchasing Division
Oliver Building
Pittsburgh, Penn. 15222

Director of Purchases
(Hydraulic Fluids)
Alabama Oxygen
P. O. Box 308
Bessemer, Alabama 35020

Director of Purchases
(Hydraulic Fluids)
Alliance Machine Co.
1049 S. Mahoning
Alliance, Ohio 44601

Director of Purchases
(Hydraulic Fluids)
Alcan Aluminum Corporation
P. O. Box 28
Oswego, New York 13126

Director of Purchases (Hydraulic
Allied Chemical Company Fluids)
Fibers Division
P. O. Box 1688
Columbia, S. C. 29202

Director of Purchases
(Hydraulic Fluids)
Allied Chemical Corporation
North Plant
State Route 2
Moundsville, W. Va. 26014

Director of Purchases
(Hydraulic Fluids)
Louis Allis Company
21 East Stuart Street
Milwaukee, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Allied Chemical
Specialty Chemicals Division
P. O. Box #E
Moundsville, W. Va. 26014

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Allis Chalmers
1126 South 70th Street
Milwaukee, Wisconsin

Director of Purchases
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Allied Chemical
Fibers Division
Box 31
Petersburg, Virginia 23803

Director of Purchases
(Hydraulic Fluids)
Allis Chalmers Mfg. Co.
631 Cottage
Independence, Missouri

Director of Purchases
(Hydraulic Fluids)
Allied Machine & Engineering Co.
401 S. Delaney Road
Owosso, Michigan 48867

Director of Purchases
(Hydraulic Fluids)
Allis Chalmers Manufacturing Co.
Norwood Works
4620 Forest Avenue
Cincinnati, Ohio 45212

Director of Purchases
(Hydraulic Fluids)
Allied Marine Corporation
2051 North West 11th Street
Miami, Florida 33125

Director of Purchases
(Hydraulic Fluids)
Alloy Die Casting
6550 Cabellero Boulevard
Buena Park, California

Director of Purchases
(Hydraulic Fluids)
Aluminum Company of America
P. O. Box 500
Lafayette, Indiana 47902

Director of Purchases
(Hydraulic Fluids)
Alpha Industries, Inc.
615 Center Avenue
Logansport, Indiana 46947

Director of Purchases
(Hydraulic Fluids)
Aluminum Company of America
Motor Freight
Riverdale, Iowa

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Alton Mill,
Cut Street
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Aluminum Company of America
5151 Alcoa Avenue
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Aluminum Company of America
Cressona,
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Sandow, Texas 76567

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Pittsburg, Pa.

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Aluminum Die Casting Company
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Aluminum Company of America
P. O. Box 98
Alcoa, Tennessee 37701

Director of Purchases
(Hydraulic Fluids)
Aluminum Forge
Altamil Corporation
502 East Alton Street
Santa Ana, California 92707

Director of Purchases
(Hydraulic Fluids)
Aluminum Company of America
Point Comfort, Texas 77978

Director of Purchases
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Ambrit Industries
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Glendale, California

Director of Purchases
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Aluminum Company of America
District Purchasing Agent
P. O. Box 4728
Rockdale, Texas

Director of Purchases (Hydraulic
Amercoat Corp. Fluids)
Department T
Brea, Calif.

Director of Purchases
(Hydraulic Fluids)
American Potash & Chemical Corp
Highway 45
Hamilton, Miss. 39746

Director of Purchases
(Hydraulic Fluids)
American Aluminum Inc.
219 Fifth Street
West Des Moines, Iowa 50265

Director of Purchases
(Hydraulic Fluids)
American Chain and Cable
Louben Division
1729 Sadelwood Boulevard
Akron, Ohio

Director of Purchases
(Hydraulic Fluids)
American Aluminum Inc.
North Des Moines Street
Webster City, Iowa

Director of Purchases
(Hydraulic Fluids)
American Chain & Cable Co.
Mansaver Division
1110 East Princess Street
York, Pa. 17405

Director of Purchases
(Hydraulic Fluids)
American Bosch Division
Ambac Industries, Inc.
3664 Main Street
Springfield, Mass. 01107

Director of Purchases
(Hydraulic Fluids)
American Chemical
P. O. Box 9247
Long Beach, California 90810

Director of Purchases
(Hydraulic Fluids)
American Can Company
P. O. Box 3748
Modesto, California 95353

Director of Purchases
(Hydraulic Fluids)
American Compressor Company
11850 East Florence Avenue
Santa Fe Springs, Cal. 90670

Director of Purchases:
(Hydraulic Fluids)
American Can Company
Route 31
Washington, N. J. 07882

Director of Purchases
(Hydraulic Fluids)
American Cyanamid Company
P. O. Box 368
Savannah, Georgia

Director of Purchases
(Hydraulic Fluids)
American Gilsonite
P. O. Box 900
Grand Junction, Colorado

Director of Purchases
(Hydraulic Fluids)
American Sealants Co.
115 N. Mountain Rd.
Hartford 11, Conn.

Director of Purchases
(Hydraulic Fluids)
American Magnesium
Route 1
P. O. Box 666
Snyder, Texas 79549

Director of Purchases
(Hydraulic Fluids)
American Smelting & Refining
P. O. Box 3612
San Francisco, Cal. 94119

Director of Purchases
(Hydraulic Fluids)
American Manufacturing Company
601 West McKee Street
Greenburgh, Indiana 47240

Director of Purchases
(Hydraulic Fluids)
American Smelting & Refining
Baltimore Refinery
Highland & Eastbourne Avenue
Baltimore, Maryland 21224

Director of Purchases
(Hydraulic Fluids)
American Meter Company
300 North Gilbert Street
Fullerton, California 92633

Director of Purchases
(Hydraulic Fluids)
American Smelting & Refining
Clover,
Missouri

Director of Purchases
(Hydraulic Fluids)
American Motors
14250 Plymouth Road
Detroit, Michigan

Director of Purchases
(Hydraulic Fluids)
American Smelting & Refining Co.
P. O. Box 24038
Houston, Texas 77029

Director of Purchases
(Hydraulic Fluids)
American Steel Foundries
1700 Walnut Street
Granite City, Ill. 62041

Director of Purchases
(Hydraulic Fluids)
Amsted Industries
Amsted Steel Foundries
1700 Walnut Street
Granite City, Illinois 62040

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(Hydraulic Fluids)
Amerock Corporation
4000 Auburn Street
Rockford, Illinois

Director of Purchases
(Hydraulic Fluids)
Anaconda Company
25 Broadway
New York, New York 10004

Director of Purchases
(Hydraulic Fluids)
Ameron Steel Producing Division
12459 Arrow Highway
Etiwanda, California 91739

Director of Purchases
(Hydraulic Fluids)
Anaconda Metal Hose Div.
Anaconda American Brass Co.
Waterbury, Conn.. 06720

Director of Purchases
(Hydraulic Fluids)
Ametek Strazza
790 Greenfield Avenue
El Cajon, California 92021

Director of Purchases
(Hydraulic Fluids)
Anadite Incorporated
Martin Machine
2027 Santa Fe
Los Angeles, California

Director of Purchases
(Hydraulic Fluids)
Amforge, Inc.
1222 W. 119th Street
Chicago, Illinois 60643

Director of Purchases
(Hydraulic Fluids)
Anchor Conveyor Division
Standard Alliance Ind., Inc..
6906 Kingsley Avenue
Dearborn, Michigan 48126

Director of Purchases
(Hydraulic Fluids)
Anchor Coupling Co., Inc.
342 North fourth Street
Libertyville, Illinois 60048

Director of Purchases
(Hydraulic Fluids)
Anheuser Busch
The A&E Eagle
c/o Allied Marine Corporation
Charleston Municipal Marina
Charleston, South Carolina

Director of Purchases
(Hydraulic Fluids)
Anchor Coupling Co.
3600 N. Fourth Street
Libertyville, Ill.

Director of Purchases
(Hydraulic Fluids)
Anixter General Die Caster
6212 Akron Peninsula Road
Peninsula, Ohio 44264

Director of Purchases
(Hydraulic Fluids)
Anchor Packing Co.
401 N. Broad St.
Philadelphia, Pa. 19108

Director of Purchases
(Hydraulic Fluids)
Ansen Automotive
13715 South Western Avenue
Gardena, California 90249

Director of Purchases
(Hydraulic Fluids)
Anheuser Busch
The A&E Eagle
c/o Allied Marine Corporation
2051 Northwest 11th Street
Miami, Florida

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Arcturus Manufacturing Corp.
6001 Arcturus Avenue
Oxnard, California 92030

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Anheuser Busch, Inc.
721 Pestolozzi Street
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Argonne Laboratory
9700 South Cass
Argonne, Illinois

Director of Purchases
(Hydraulic Fluids)
Armco Steel Corporation
Ashland Works
Ashland, Kentucky

Director of Purchases
(Hydraulic Fluids)
Arnold Engineering
1551 East Orangethorpe Avenue
Fullerton, California 92631

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(Hydraulic Fluids)
Armco Steel Corp.
703 Curtis Street
Middletown, Ohio

Director of Purchases
(Hydraulic Fluids)
Aro Incorporated
Invoice Division
Arnold AFB Station, Tenn.

Director of Purchases
(Hydraulic Fluids)
Armco Steel Corporation
P. O. Box 591
Butler, Penn. 16001

Director of Purchases
(Hydraulic Fluids)
Arrow Acme Corporation
411 Prospect
Webster City, Iowa

Director of Purchases
(Hydraulic Fluids)
Armco Steel Corporation
National Supply Division
Export Department
P. O. Box 723
Houston, Texas 77001

Director of Purchases
(Hydraulic Fluids)
Arrow Aluminum Casting Company
3135 Berea Road
Cleveland 11, Ohio

Director of Purchases
(Hydraulic Fluids)
Arnold Air Drilling
P. O. Box 727
Forth Smith, Arkansas 72901

Director of Purchases
(Hydraulic Fluids)
Arrow Diecasting Company
4031 Goodwin Avenue
Los Angeles, California

Director of Purchases
(Hydraulic Fluids)
Arrowhead Brass Products
5142 Alhambra Avenue
Los Angeles 32, California

Director of Purchases
(Hydraulic Fluids)
Atlantic Die Casting Company
2585 Beaufait Avenue
Detroit, Michigan

Director of Purchases
(Hydraulic Fluids)
Ashland Oil and Refining Company
1401 Winchester Street
Ashland, Kentucky

Director of Purchases
(Hydraulic Fluids)
Atlanta Gas Light Company
P. O. Box 4569
Riverdale, Georgia 30302

Director of Purchases
(Hydraulic Fluids)
Associated Milk Producers, Inc.
P. O. Box 920
Rochester, Minn. 55901

Director of Purchases
(Hydraulic Fluids)
Atlantic Richfield
P. O. Box 2819
Dallas, Texas 75221

Director of Purchases
(Hydraulic Fluids)
Athens Foundry Corporation
101 North Main Street
Athens, Pennsylvania 18810

Director of Purchases
(Hydraulic Fluids)
Atlantic Richfield
875 North Michigan Avenue
Chicago, Illinois 60611

Director of Purchases
(Hydraulic Fluids)
Athens Oil Company
P. O. Box 178
Athens, Tenn. 37301

Director of Purchases
(Hydraulic Fluids)
Atlantic Richfield
P. O. Box 250
Richland, Washington 99352

Director of Purchases
(Hydraulic Fluids)
Atlantic Richfield
P. O. Box 958
Gillette, Wyoming 82716

Director of Purchases
(Hydraulic Fluids)
Atlantic Steel Company
1365 Mecalpin Street North West
c/o Mill Storeroom
Atlanta, Georgia 30301

Director of Purchases
Atlas Fluid Components, Inc.
1772 State Road
P. O. Box 1013
Cuyahoga Falls, Ohio 44223

Director of Purchases
(Hydraulic Fluids)
Atlas Systems
P. O. Box 496
Parkwater Station
Spokane, Washington 99211

Director of Purchases
(Hydraulic Fluids)
Auto Control Laboratories
Divn. Rucker Company, Inc.
5251 West Imperial Highway
Los Angeles, California 90045

Director of Purchases
(Hydraulic Fluids)
Aves Manufacturing Company
4211 Redwood Avenue
Los Angeles, California 90066

Director of Purchases
(Hydraulic Fluids)
E. W. Bliss
Babcock and Wilcox
1501 Raff Road
Canton, Ohio

Director of Purchases
(Hydraulic Fluids)
Babcock and Wilcox
Center Power Plant
Center, North Dakota

Director of Purchases
(Hydraulic Fluids)
Ball Corporation
1856 Nedersonville Road
Asheville, N. C.

Director of Purchases
(Hydraulic Fluids)
Babcock & Wilcox Company
Tubular Products Division
P. O. Box 401
Beaver Falls, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
Ballman Engineering
601 International Avenue
Washington, Missouri 63090

Director of Purchases
(Hydraulic Fluids)
Badger Die Casting Corporation
201 West Oklahoma Avenue
Milwaukee, Wisconsin 53207

Director of Purchases
(Hydraulic Fluids)
Barber Coleman Company
1300 Rock Street
Rockford, Illinois

Director of Purchases
(Hydraulic Fluids)
Ball Corporation
1200 Townline Road
Tre 60 at Jct. 45
Mundelein, Illinois 60060

Director of Purchases
(Hydraulic Fluids)
Barber Die & Tool
4707 West North Avenue
Chicago, Illinois 60639

Director of Purchases
(Hydraulic Fluids)
Ball Corporation
4000 North Arden Drive
Muncie, Indiana 47302

Director of Purchases
(Hydraulic Fluids)
Baron Blakeslee
Division of Purex Corporation
9445 Ann Street
Santa Fe Springs, Cal. 90670

Director of Purchases
(Hydraulic Fluids)
E. T. Barwick Industries
5025 New Peachtree Road
Chamblee, Georgia 30005

Director of Purchases
(Hydraulic Fluids)
Bauer Ind. Sales
611 Dettford Avenue
Dayton, Ohio 45429

Director of Purchases
(Hydraulic Fluids)
A. J. Baxter Company
10171 West Jefferson
River Rouge, Mich. 49128

Director of Purchases
(Hydraulic Fluids)
City of Beacon
Commissioner of Accounts
City Office
Beacon, New York 12508

Director of Purchases
(Hydraulic Fluids)
Basic Aluminum Castings Company
1325 East 168th Street
Cleveland 10, Ohio

Director of Purchases
(Hydraulic Fluids)
Beardsley Piper Divison
Pettibone Mullikin Company
2424 North Cicero Avenue
Chicago, Illinois

Director of Purchases
(Hydraulic Fluids)
Baso Division
Penn Controls, Inc.
400 West Burnham
Milwaukee, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Bearings, Inc.
3634 Euclid Ave.
Cleveland, Ohio 44115

Director of Purchases
(Hydraulic Fluids)
Belden Corporation
415 S. Kilpatrick Avenue
Chicago, Illinois 60644

Director of Purchases
(Hydraulic Fluids)
Bell & Howell Company
7100 McCormick
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Director of Purchases
(Hydraulic Fluids)
Bendix Corporation
Scientific Instruments & Equip.
1775 Mt. Read Boulevard
Rochester, N. Y. 14603

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Bellows Valair
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Bendix Corporation
95th & Troost
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Belridge Oil Company
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Scintilla Magneto Division
Sidney, New York

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Director of Purchases
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Bendix Corporation
Utica Division
211 Seward Avenue
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Bendix Corporation
Bendix Products
Aerospace Division
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Bertram Delco
Kokomo,
Indiana

Director of Purchases
(Hydraulic Fluids)
Bethlehem Steel Corporation
701 East Third Street
Bethlehem, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
Blackwell Zinc
Blackwell,
Oklahoma 74631

Director of Purchases
(Hydraulic Fluids)
Bethlehem Steel Corporation
West End Yard
Steelton, Penn.

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Equipment Company
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Director of Purchases
(Hydraulic Fluids)
Blaw Knox Company
Farmers Bank Building
Pittsburgh, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
Black & Clawson, Inc.
West Virginia Pulp and Paper
Bleached Board Division
Covington, Virginia

Director of Purchases
(Hydraulic Fluids)
Blaw Knox Company
Warwood Works
Warwood, West Virginia

Director of Purchases
(Hydraulic Fluids)
Black & Decker Mfg. Co.
Fountain Avenue
Lancaster, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
Boeing Company
Commercial Airplane Division
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Bohn Aluminum & Brass Corp.
Division Universal American Corp.
E. Maumee Street
Adrian, Michigan

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(Hydraulic Fluids)
Bossert Manufacturing Corp.
1002 Oswego Street
Utica, New York 13503

Director of Purchases
(Hydraulic Fluids)
Bohrn Aluminum & Brass Corp.
Divn. Universal American Corporation
Lafayette Building
Detroit, Michigan 48226

Director of Purchases
(Hydraulic Fluids)
Bounty Shoes
R. H. Bouligny Company Inc.
433 West More head
Charlotte, North Carolina

Director of Purchases
(Hydraulic Fluids)
The Borden Company
Columbus Coated Fabrics
1280 North Grant Avenue
Columbus, Ohio 43216

Director of Purchases
(Hydraulic Fluids)
Brackett Stripping Co., Inc.
P. O. Box 125
Topeka, Kansas 66601

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Borg Warner Corporation
Calumet Steel Division
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(Hydraulic Fluids)
Bradford Marine
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Director of Purchases
(Hydraulic Fluids)
Borg Warner Corporation
York Division
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York, New York 17405

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(Hydraulic Fluids)
C. F. Braun
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Director of Purchases
(Hydraulic Fluids)
Brewster Company
P. O. Drawer 1095
Shreveport, La. 71102

Director of Purchases
(Hydraulic Fluids)
Andrew Brown Paint Co.
5413 S. District Blvd.
Los Angeles, Calif.

Director of Purchases
(Hydraulic Fluids)
Bridgeport Brass
30 Grant Street
Bridgeport, Conn. 06602

Director of Purchases
(Hydraulic Fluids)
Brown Company
Purchasing Department
Berlin, N. H. 03570

Director of Purchases
(Hydraulic Fluids)
Briggs Filtration Div.
Bowser Corp.
Cookeville, Tenn.

Director of Purchases
(Hydraulic Fluids)
Brown Industries, Inc.
Sub. of Sterling Foundry Co.
1737 Camp Street
Sandusky, Ohio 44870

Director of Purchases
(Hydraulic Fluids)
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P. O. Box 700
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Director of Purchases
(Hydraulic Fluids)
Brunswick Corporation
1700 Messler
Muskegon, Michigan

Director of Purchases :
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Briggs Weavers
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Director of Purchases
(Hydraulic Fluids)
B&T Machinery Company
217 West 8th Street
Holland, Michigan 49423

Director of Purchases
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Bunting Brass & Bronze Company
715 Spencer Street
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Director of Purchases
(Hydraulic Fluids)
Buckeye Steel Castings Company
2211 Parsons Avenue
Columbus, Ohio

Director of Purchases
(Hydraulic Fluids)
Burda Metals Company
Hialeah,
Florida

Director of Purchases
(Hydraulic Fluids)
Bucyrus-Erie Company
P. O. Box 56
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Detroit, Michigan

Director of Purchases
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Budd Company
2450 Hunting Park Avenue
Philadelphia, Penna.

Director of Purchases
(Hydraulic Fluids)
Calhoun Foundry Company, Inc.
South Clay Street
Homer, Michigan 49245

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(Hydraulic Fluids)
C&H Die Casting Incorporated
P. O. Box 1170
Temple, Texas

Director of Purchases
(Hydraulic Fluids)
Cameron Iron Works Inc.
Oil Well Specialists
P. O. Box 1212
Houston, Texas

Director of Purchases
(Hydraulic Fluids)
Cabot Corporation
Stellite Division
1020 West Park Avenue
Kokomo, Indiana 46901

Director of Purchases
(Hydraulic Fluids)
Capital Engineering Co.
5839 Ashland Ave.
Chicago, Ill.

Director of Purchases
(Hydraulic Fluids)
Cabot Corporation
P. O. Box 1101
Pampa, Texas 79065

Director of Purchases
(Hydraulic Fluids)
Capital Wire and Cable Corp.
910 10th Street
Plano, Texas

Director of Purchases
(Hydraulic Fluids)
Cadillac Malleable Iron Co.
Cadillac,
Michigan 46901

Director of Purchases
(Hydraulic Fluids)
Capstone Industries
P. O. Box 4060
Corpus Christi, Texas 78408

Director of Purchases
(Hydraulic Fluids)
Carboline Co.
32 R Hanley Industrial Court
St. Louis, Mo.

Director of Purchases
(Hydraulic Fluids)
Carling Brewing
9400 Quincy Avenue
Cleveland, Ohio

Director of Purchases
(Hydraulic Fluids)
Carborundum Company
P. O. Box 157
Falconer, N. Y. 14733

Director of Purchases
(Hydraulic Fluids)
Carpenter Technology Corporation
P. O. Box 662
Reading, Penna. 19603

Director of Purchases
(Hydraulic Fluids)
The Carborundum Company
P. O. Box 337
Niagara Falls, N. Y. 14302

Director of Purchases
(Hydraulic Fluids)
Carrier Air Conditioning Company
Divn. Carrier Corporation
Box 1264
Syracuse, New York 13201

Director of Purchases
(Hydraulic Fluids)
Carborundum Co.
Process Equipment Division
31935 Aurora Road
Solon, Ohio 44129

Director of Purchases
(Hydraulic Fluids)
Carrol Products
148 Marine Street
Farmingdale, N. Y.

Director of Purchases
(Hydraulic Fluids)
Cargill-Detroit Corporation
1250 Northcooks Road
Clawson, Michigan 48017

Director of Purchases
(Hydraulic Fluids)
Carter Carburetor Corporation
2840 South Spring Avenue
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Carter Mech. Inc.
Box 28
Galion, Ohio 44833

Director of Purchases
(Hydraulic Fluids)
Catching Engineer
2101 Roberts Drive
Broadview, Illinois 60153

Director of Purchases
(Hydraulic Fluids)
Cast All Corporation
229 Liberty Avenue
Mineola, New York 11500

Director of Purchases
(Hydraulic Fluids)
Caterpillar Tractor Co.
Peoria,
Illinois

Director of Purchases
(Hydraulic Fluids)
Cast Forge Company
2440 West Highland Road
Howell, Michigan 48843

Director of Purchases
(Hydraulic Fluids)
CE Refractories
101 Ferry Street
St. Louis, Missouri 63147

Director of Purchases
(Hydraulic Fluids)
H. P. M. Castmaster
820 Marion Rd.
Mt. Gilead, Ohio 43338

Director of Purchases
(hydraulic fluids)
CE Refractories
Vandalia,
Missouri

Director of Purchases
(Hydraulic Fluids)
Catalina Divers
P. O. Box 126
Avalon, California 90704

Director of Purchases
(Hydraulic Fluids)
Celanese Polymer Company
160 Aterminal Avenue
Clark, New Jersey

Director of Purchases
(Hydraulic Fluids)
Chase Brass & Copper Co. Inc.
20600 Chargin Blvd.
Cleveland, Ohio 44122

Director of Purchases
(Hydraulic Fluids)
Central Die Casting & Mfg. Co.
2935 West 47th Street
Chicago, Illinois

Director of Purchases
(Hydraulic Fluids)
Char-Lynn Company
15151 Highway Five
Eden Prairie, Minn. 55345

Director of Purchases
(Hydraulic Fluids)
Century Electric Company
1806 Pine Street
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Chase Manufacturing
Chase Road
Douglas, Michigan

Director of Purchases
(Hydraulic Fluids)
Central Metals Co.
950 Marietta Street
Atlanta, Georgia 30318

Director of Purchases
(Hydraulic Fluids)
Chelsea Indust. Inc. Park
Salem Plastics & Chemical Inc.
49 Congress
Salem, Mass. 01970

Director of Purchases
(Hydraulic Fluids)
Cerro Copper & Brass Co.
P. O. Box 444
Newark, California 94560

Director of Purchases
(Hydraulic Fluids)
Chemola Mfg. Company
4750 Clinton Drive
Houston, Texas

Director of Purchases
(Hydraulic Fluids)
Cerro Corporation
Cerro Copper & Brass Division
Bellefonte, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
A. W. Chesterton Co.
Everett, Mass. 02149

Cherry Burrell Corporation

Cedar Rapids, Iowa 52406

Director of Purchases
(Hydraulic Fluids)
Chicago Rawhide Mfg. Co.
1311 Elston
Chicago, Ill. 60622

Director of Purchases
(Hydraulic Fluids)
Cincinnati Shaper
P. O. Box 111
Cincinnati, Ohio 45211

Director of Purchases
(Hydraulic Fluids)
Chicago White Metal Casting Co.
5239 West Grand
Chicago, Illinois 60639

Director of Purchases
(Hydraulic Fluids)
Cities Service
Tampa Agri. Chem Operations
P. O. Box 3269
Tampa, Florida

Director of Purchases
(Hydraulic Fluids)
Chiksan Div.
FMC Corp.
332 N. Brea Blvd.
Brea, Calif.

Director of Purchases
(Hydraulic Fluids)
Cities Service Gas Company
P. O. Box 25128
Oklahoma City, Okla. 73125

Director of Purchases
(Hydraulic Fluids)
Chrysler Corporation
Indianapolis Foundry
1100 South Tibb Avenue
Indianapolis, Indiana

Director of Purchases
(Hydraulic Fluids)
Cities Service Oil
Purchasing Department
P. O. Box 245
Tulsa, Oklahoma 73102

Director of Purchases
(Hydraulic Fluids)
Ciba Pharmaceutical
556 Morris Avenue
Summit, New Jersey 07901

Director of Purchases
(Hydraulic Fluids)
City of Galvanizers
820 North Russell
Portland, Oregon 97227

Director of Purchases
(Hydraulic Fluids)
Melroe Company
Clark Equipment
Gwinner, North Dakota

Director of Purchases
(Hydraulic Fluids)
Clevite Corporation
Piezoelectric Division
232 Forbes Road
Bedford, Ohio

Director of Purchases
(Hydraulic Fluids)
Cleveland Automatic Machine
4101 Spring Grove Avenue
Cincinnati, Ohio 45223

Director of Purchases
(Hydraulic Fluids)
Clevite Corporation
Cleveland Graphite Bronze Division
Caldwell, Ohio

Director of Purchases
(Hydraulic Fluids)
Cleveland Crane Engineering
1271 East 289
Cleveland, Ohio 44132

Director of Purchases
(Hydraulic Fluids)
Cliquot Club Company
725 Main Street
Millis, Maine 02054

Director of Purchases
(Hydraulic Fluids)
Cleveland Crane & Engineering
1271 East 289th Street
Wickliffe, Ohio 44092

Director of Purchases
(Hydraulic Fluids)
Clover Casting Company
P. O. Box 565
Redwood Highway South
Cloverdale, Cal. 95425

Director of Purchases
(Hydraulic Fluids)
Cleveland Graphite Bronze
Division Clevite Corporation
16800 St. Clair
Cleveland, Ohio 44110

Director of Purchases
(Hydraulic Fluids)
Club Monarch Aluminum Division
Standard International Corp.
9205 Detroit Avenue
Cleveland, Ohio 44102

Director of Purchases
(Hydraulic Fluids)
Clyde Equipment & Engineering Co.
P. O. Box 1926
Bechtold Station
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Colson Company
440 Somerville Avenue
Somerville, Mass. 02143

Director of Purchases
(Hydraulic Fluids)
Collier Carbon & Chemical Corp.
P. O. Box 60455
Los Angeles, Cal. 90060

Director of Purchases
(Hydraulic Fluids)
Colt Industries
Crucible Magnetics Division
P. O. Box 100
Elizabethtown, Ky. 42701

Director of Purchases
(Hydraulic Fluids)
Collins Radio
Cedar Rapids,
Iowa

Director of Purchases
(Hydraulic Fluids)
Columbia Gas
120 E. 41st Street
New York, N. Y. 10017

Director of Purchases
(Hydraulic Fluids)
Collins Radio
1930 Hilline Drive
Dallas, Texas 75207

Director of Purchases
(Hydraulic Fluids)
Commercial Filters Corporation
415 Indianapolis Avenue
Lebanon, Indiana

Director of Purchases
(Hydraulic Fluids)
Colorado Interstate Gas Company
P. O. Box 1087
Colorado Springs, Colorado

Director of Purchases
(Hydraulic Fluids)
Commercial Filters Corp.
148 Marine Street
Farmingdale, N. Y.

Director of Purchases
(Hydraulic Fluids)
Commodity Steel Processing
6561 East 7 Mile Road
Detroit, Michigan 38234

Director of Purchases
(Hydraulic Fluids)
Consolidated Edison Co. of
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4 Irving Place
New York, New York

Director of Purchases
(Hydraulic Fluids)
Commonwealth Edison
72 West Adams Street
P. O. Box 767
Chicago, Illinois 60690

Director of Purchases
(Hydraulic Fluids)
Constellation Steel Mill Equipment
200 West North Bend Road
Cincinnati, Ohio 45216

Director of Purchases
(Hydraulic Fluids)
Connolly-Herf
10785 Hamburg Road
Hamburg, Michigan 48139

Director of Purchases
Continental Aviation & Air Craft
1510 Laskey Road
Toledo, Ohio 43712

Director of Purchases
(Hydraulic Fluids)
C. E. Conover & Co., Inc.
333 Passaic Ave.
Fairfield, N. J. 07006

Director of Purchases
(Hydraulic Fluids)
Continental Can Co., Inc.
1517 South Gertrude Place
Santa Ana, California

Director of Purchases
(Hydraulic Fluids)
Consolidated Aluminum Corp.
1100 Richmond
Jackson, Tennessee

Director of Purchases
(Hydraulic Fluids)
Continental Can Co., Inc.
Bond Crown & Cork Division
16th & Locust Streets
Wilmington, Delaware

Director of Purchases
(Hydraulic Fluids)
Continental Can Co., Inc.
135 South La Salle Street
Chicago, Illinois

Director of Purchases
(Hydraulic Fluids)
Continental Can Co., Inc.
170 Circle Drive North
Piscataway, N. J. 08824

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Continental Can Co., Inc.
2727 West Higgins
Elk Grove Village, Illinois

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Continental Can Co., Inc.
95 West Crescentville Road
Cincinnati, Ohio 45246

Director of Purchases
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Continental Can Co., Inc.
11725 West 85th Street
Lenexa, Kansas 66215

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Continental Can Co., Inc.
19801 Holland Road
Cleveland, Ohio 44142

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Continental Can Co., Inc.
7100 East Baltimore Street
Baltimore, Maryland

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Continental Can Co., Inc.
4848 Giuton
P. O. Drawer 22085
Houston, Texas

Director of Purchases
(Hydraulic Fluids)
Continental Can Co., Inc.
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Milltown, N. J. 08850

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(Hydraulic Fluids)
Continental Can Co., Inc.
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Clarksburg, W. Va. 26301

Director of Purchases
(Hydraulic Fluids)
Continental Emsco
P. O. Box 1522
Houston, Texas 77002

Director of Purchases
(Hydraulic Fluids)
Countrys Delight Milk
Divn. Certified Grocers of Illinois
5332 Southwestern Avenue
Chicago, Illinois 60609

Director of Purchases
(Hydraulic Fluids)
Continental Machines Inc.
Savage, Minnesota 55378

Director of Purchases
(Hydraulic Fluids)
L. M. Cox Manufacturing Co., Inc.
P. O. Box 476
Santa Ana, California

Director of Purchases
(Hydraulic Fluids)
Continental Steel Corporation
South Plant
Kokomo, Indiana

Director of Purchases
(Hydraulic Fluids)
Crane Company
Airport Road
Jonesboro, Arkansas 72401

Director of Purchases
(Hydraulic Fluids)
Copperweld Steel
Ohio Sheet Tube Division
Shelby, Ohio 44875

Director of Purchases
(Hydraulic Fluids)
Crane Company
4100 South Kedzie Avenue
Chicago, Illinois 62632

Director of Purchases
(Hydraulic Fluids)
Cornwall Metal Works
Box 32
Cornwall, Pa. 17016

Director of Purchases
(Hydraulic Fluids)
Crane Packing Co.
6400 Dakton Street
Morton Grove, Ill. 60053

Director of Purchases
(Hydraulic Fluids)
Crawford and Doherty Foundry
4604 S.E. 17th Avenue
Portland, Oregon 97202

Director of Purchases
(Hydraulic Fluids)
W. F. Curlee Manufacturing Co.
P. O. Box 776
Houston, Texas

Director of Purchases
(Hydraulic Fluids)
Curtis Manufacturing
1905 Kienlen Avenue
St. Louis, Missouri 63133

Director of Purchases
(Hydraulic Fluids)
Crist Machinery & Supply
Plateau Supply Inc.
P. O. Box 563
Albuquerque, N. M. 87103

Director of Purchases
(Hydraulic Fluids)
Custom Beverage & Cannery
P. O. Box 1048
Charlotte, N. C. 28201

Director of Purchases
(Hydraulic Fluids)
Crucible Steel Company of America
Sanderson Halcomb Works
Syracuse, New York

Director of Purchases
(Hydraulic Fluids)
Cuyahoga Industries Division
Basic Aluminum Castings Co.
17920 Waterloo Road
Cleveland, Ohio 44119

Director of Purchases
(Hydraulic Fluids)
Cuno Engineering Corp.
Sub. of American Machine
& Foundry
4627 S. Vine Street
Meriden, Conn.

Director of Purchases
(Hydraulic Fluids)
Cyclops Corporation
Empire Reeves Steel Division
913 Downmen Street
Mansfield, Ohio 44901

Director of Purchases
(Hydraulic Fluids)
Daca Company
312 Carleton Avenue
Maryville, Michigan

Director of Purchases
(Hydraulic Fluids)
Davis Fire Brick Company
Oak Hill,
Ohio 45556

Director of Purchases
(Hydraulic Fluids)
Daisy Heddon Division
Victor Compometer Corporation
Rogers, Arkansas 72756

Director of Purchases
(Hydraulic Fluids)
J. H. Day Company
Cleveland Automatic Machine Co. Divn.
4932 Beech
Cincinnati, Ohio

Director of Purchases
(Hydraulic Fluids)
Dallas Die Casting Company
334 Rock Island Street
Dallas, Texas

Director of Purchases
(Hydraulic Fluids)
Dayton Malleable Iron
3931 South Dixie Highway
Dayton, Ohio 45439

Director of Purchases
(Hydraulic Fluids)
Dana Corporation
Perfect Circle Sleeve Division
Route 35 West
P. O. Box 990
Richmond, Indiana 47374

Director of Purchases
(Hydraulic Fluids)
Ironton Malleable
Divn. of Dayton Malleable Iron Co.
2618 So. 3rd Street
Ironton, Ohio 45638

Director of Purchases
(Hydraulic Fluids)
Dana Corporation
4100 Bennett Road
Toledo, Ohio

Director of Purchases
(Hydraulic Fluids)
Deering Milliken, Inc.
P. O. Box 1838
Spartanburg, S. C. 29301

Director of Purchases
(Hydraulic Fluids)
De Laval Manufacturing Co.
811 Fourth Street
West Des Moines, Iowa

Director of Purchases
(Hydraulic Fluids)
A. P. DeSanno & Sons Inc.
Phoenixville, Penna.

Director of Purchases
(Hydraulic Fluids)
De Laval Separator Company
350 Dutchess Turnpike
Poughkeepsie, N. Y. 12602

Director of Purchases
(Hydraulic Fluids)
City of Detroit
City Controller
1110 City-County Building
Detroit, Michigan 48226

Director of Purchases
(Hydraulic Fluids)
DeLaval Turbine Co.
P. O. Box 251
Trenton, N. J. 08602

Director of Purchases
(Hydraulic Fluids)
Detroit Steel Corporation
Portsmouth Division
Portsmouth, Ohio

Director of Purchases
(Hydraulic Fluids)
Delmar Die Casting
17250 South Main
Gardena, California 90247

Director of Purchases
(Hydraulic Fluids)
Diamond Chain Company
402 Kentucky Avenue
Indianapolis, Indiana

Director of Purchases
(Hydraulic Fluids)
Delta Die Casting
217 Fay Avenue
Addison, Illinois 60101

Director of Purchases
(Hydraulic Fluids)
Diamond Metal Alloys
P. O. Box 2119
Houston, Texas 77001

Director of Purchases
(Hydraulic Fluids)
Diamond Shamrock
Belle West,
Virginia 25015

Director of Purchases
(Hydraulic Fluids)
Divers Equipment
5800 Barrymore
Kansas City, Missouri 64134

Director of Purchases
(Hydraulic Fluids)
Dibert Bancroft & Ross Co., Ltd.
P. O. Box 836
Amite, La. 70422

Director of Purchases
(Hydraulic Fluids)
Dix Line Casket Hardware Co.
Galva,
Illinois

Director of Purchases
(Hydraulic Fluids)
Die Cast Corporation
415 Cleveland Avenue
Sheboygan Falls, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Dollar Electric Company
P. O. Box 587
Madison Heights, Mich. 48071

Director of Purchases
(Hydraulic Fluids)
Die Cast Manufacturing
10148 Rust Street
El Monte, California 91733

Director of Purchases
(Hydraulic Fluids)
Dollinger Corp.
20 Centre Park
Rochester 3, N.Y.

Director of Purchases
(Hydraulic Fluids)
Dive Shop
110 West Main Street
Bayshore, New York 11706

Director of Purchases
(Hydraulic Fluids)
Dort Manufacturing Company
3283 South Dort Highway
Flint, Michigan 48807

Director of Purchases
(Hydraulic Fluids)
Double A Products Company
Manchester,
Michigan

Director of Purchases
(Hydraulic Fluids)
Dow Chemical Co.
P. O. Box 888
Golden Colorado 80401

Director of Purchases
(Hydraulic Fluids)
Dover-Hunter-Hays Company
106 Buena Vista S.E.
Albuquerque, N. M.

Director of Purchases
(Hydraulic Fluids)
Dow Chemical Co.
Madison Division
Madison,
Illinois 62060

Director of Purchases
(Hydraulic Fluids)
Dover Hunter Hays Co.
P. O. Box 47181
Dallas, Texas 75247

~~Director of Purchases
(Hydraulic Fluids)
Dow Chemical Company
P. O. Box 1724
Midland, Michigan~~

Delete

Director of Purchases
(Hydraulic Fluids)
Dow Chemical Company
P. O. Box 752
Russellville, Ark. 72801

Director of Purchases
(Hydraulic Fluids)
Dow Chemical Company
P. O. Box 6417
Cleveland, Ohio

Director of Purchases
(Hydraulic Fluids)
Dow Chemical Co.
305 Crenshaw Blvd.
Torrance, California

Director of Purchases
(Hydraulic Fluids)
Down Industrial Service
428 Thatcher Drive
Box 2429
Youngstown, Ohio 44509

E.I. DuPont de Nemours & Co.

Houston Plant

Strang, Texas

D/P Way Corporation

P.O. Box 6336

Milwaukee, Wisconsin 53209

Director of Purchases
(Hydraulic Fluids)
Dravo Corporation
Neville Island
Pittsburgh, Penn. 15225

Director of Purchases
(Hydraulic Fluids)
E. L. DuPont de Nemours & Co., Inc.
Purchasing Department
Room 6074
Wilmington, Delaware

Director of Purchases
(Hydraulic Fluids)
Dresser Industries
P. O. Box 7247
Dallas, Texas 57209

Director of Purchases
(Hydraulic Fluids)
Duquesne Light
General Purchasing Department
Elrama, Pennsylvania 15038

Director of Purchases
(Hydraulic Fluids)
Drumheller Tool & Die Company
7312 Elmo
Tujunga, California 91042

Director of Purchases
(Hydraulic Fluids)
Durrum Instruments
3950 Fabian Way
Palo Alto, California 94303

Director of Purchases
(Hydraulic Fluids)
Dryad Die Casting Corporation
North Avenue
Manchester, New York

Director of Purchases
(Hydraulic Fluids)
Dutton-Lainson Company
1601 West Second Street
Hastings, Nebraska 68901

Director of Purchases
(Hydraulic Fluids)
Duncan Industries Incorporated
751 Pratt Boulevard
Elk Grove Village, Ill. 60007

Director of Purchases
(Hydraulic Fluids)
Dynamic Forge Corporation
Oxford,
Nebraska

Director of Purchases
(Hydraulic Fluids)
Eagle Iron Works
P. O. Box 934
Des Moines, Iowa 50304

Director of Purchases
(Hydraulic Fluids)
Eastman Mfg. Co.
Dept. T.R.
6300 W. Howard Street
Chicago, Ill.

Director of Purchases
(Hydraulic Fluids)
East Chicago Machine Tool Corp.
4801 Railroad Avenue
East Chicago, Indiana 46312

Director of Purchases
(Hydraulic Fluids)
Eaton Corporation
Char-Lynn Plant
15151 Highway 5
Eden Prairie, Minn. 55343

Director of Purchases
(Hydraulic Fluids)
Eastern Castings
64 South William
Newburgh, N. Y. 12550

Director of Purchases
(Hydraulic Fluids)
Eaton Corporation
1111 East 200th Street
Cleveland, Ohio

Director of Purchases
(Hydraulic Fluids)
Eastland Industries, Inc.
P. O. Box 190
Eastland, Texas 76448

Director of Purchases
(Hydraulic Fluids)
Eaton Yale & Towne, Inc.
Eaton Valve Division
463 North 20th Street
Battle Creek, Michigan

Director of Purchases
(Hydraulic Fluids)
Eastman Kodak Company
Kodak Part Works
543 State Street
Rochester 4, New York

Director of Purchases
(Hydraulic Fluids)
Eaton Yale and Towne, Inc.
Spring Division
9771 French Road
Detroit, Michigan 48213

Director of Purchases
(Hydraulic Fluids)
Eaton Yale and Towne
Easton Saginaw Division
1000 Rust Avenue
Saginaw, Michigan 48601

Director of Purchases
(Hydraulic Fluids)
Electric Hose & Rubber Co.
1201 Duro Street
Wilmington, Delaware

Director of Purchases
(Hydraulic Fluids)
E G & G Incorporated
P. O. Box 294
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Director of Purchases
(Hydraulic Fluids)
Electrical Products Division
Midland Ross Corporation
2210 South David Street
Los Angeles, California 90022

Director of Purchases
(Hydraulic Fluids)
E & H Specialties
1907 College Wood
Ypsilanti, Michigan 48197

Director of Purchases
(Hydraulic Fluids)
Electrolux Corporation
Divn. Consolidated Foods Corp.
51 Forest Avenue
Old Greenwich, Conn. 06870

Director of Purchases
(Hydraulic Fluids)
Elano Corporation
2455 Dayton Xenia Road
Xenia, Ohio 45385

Director of Purchases
(Hydraulic Fluids)
Elkton Diecasting
Elkton,
Kentucky 42220

Director of Purchases
(Hydraulic Fluids)
Electric Energy Incorporated
P. O. Box 165
Joppa, Illinois 62953

Director of Purchases
(Hydraulic Fluids)
Elliott Company
North Fourth Street
Jeanette, Penn. 15644

Esso Research Engineering

P.O. Box 642

Linden, New Jersey 07036

Enjay Chemical Company
2350 S. Lauderdale Ave.
Memphis, Tenn.

Director of Purchases
(Hydraulic Fluids)
El Paso Natural Gas
P. O. Box 1492
El Paso, Texas

Director of Purchases
(Hydraulic Fluids)
Empire Adhesives
70 Concord Street
North Reading, Mass. 01864

Director of Purchases
(Hydraulic Fluids)
El Paso Natural Gas
Sumas,
Washington 98295

Director of Purchases
(Hydraulic Fluids)
Empire Die Casting Company
19800 Miles Avenue
Cleveland, Ohio 44128

Director of Purchases
(Hydraulic Fluids)
The Elwell-Parker Electric Company
4205 St. Clair Avenue
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Director of Purchases
(Hydraulic Fluids)
Empire Plow Company
1340 East 65th Street
Cleveland, Ohio 44127

Director of Purchases
(Hydraulic Fluids)
Emerson Electric Mfg. Co.
Turret Division
810 Florissant Avenue
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Erickson Corporation
211 St. Anthony Boulevard N.E.
Minneapolis, Minnesota

Director of Purchases
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Emerson Electric Company
In-Sink-Erator Division
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Erie Mining
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Hoyt Lake, Minn. 55750

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Portland, Oregon

Director of Purchases
(Hydraulic Fluids)
Excello Corporation
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Greenville, Ohio

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(Hydraulic Fluids)
Esco Elevators, Inc.
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Essex International Company
Polymer Division
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Rockford, Illinois 61103

Director of Purchases
(Hydraulic Fluids)
Essex International
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Three Rivers, Mich. 49193

Director of Purchases
(Hydraulic Fluids)
Ethyl Corporation
1600 West 8 Mile Road
Ferndale, Michigan 48220

Director of Purchases
(Hydraulic Fluids)
Exide Power Systems Div.
ESB, Inc.
P.O. Box 5723
Philadelphia, Pa. 19120

Director of Purchases
(Hydraulic Fluids)
Ford Motor Company
Cleveland Foundry
P.O. Box 9900
Cleveland, Ohio 44142

Director of Purchases
(Hydraulic Fluids)
Ferrous Dye Casting Corp.
206 Main Street
Manasquan, N.J. 08736

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(Hydraulic Fluids)
Ford Motor Company
Nashville Glass Plant
P.O. Box 1355
Nashville, Tenn. 37202

Director of Purchases
(Hydraulic Fluids)
Fiberite Corporation
516 West Fourth Street
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Director of Purchases
(Hydraulic Fluids)
Ford Motor Company
~~Central Office Acctg.~~
P.O. Box ~~128~~ 1661
Dearborn, Mich. 48121

Director of Purchases
(Hydraulic Fluids)
Ford Motor Company
P.O. Box 1966
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Director of Purchases
(Hydraulic Fluids)
Pan Steel Incorporated
Route 5
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Muskogee, Okla. 74401

Director of Purchases
(Hydraulic Fluids)
Federal Mogul
2310 S. Industrial Highway
Ann Arbor, Michigan

Director of Purchases
(Hydraulic Fluids)
Farrell Cheek Steel Company
710 Lane Street
Sandusky, Ohio 44870

Director of Purchases
(Hydraulic Fluids)
Federal Screws Works, Inc.
3401 Martin Avenue
Detroit, Michigan 48210

Director of Purchases
(Hydraulic Fluids)
Fate-Root Heath Company
Plymouth,
Ohio 44865

Director of Purchases
(Hydraulic Fluids)
Feem Products Incorporated
P. O. Box 242
Iola, Kansas 66749

Director of Purchases
(Hydraulic Fluids)
Federated Metals
P. O. Box 24038
Houston, Texas 77029

Director of Purchases
(Hydraulic Fluids)
Finch Paint & Chemical Co.
Torrence, Calif.

Director of Purchases
(Hydraulic Fluids)
Federal Mogul Division
Federal Mogul Corporation
451 County Line Road
Mooreville, Indiana 46158

Director of Purchases
(Hydraulic Fluids)
Florida Steel Corporation
P. O. Box 3321
Tampa, Florida 33601

Director of Purchases
(Hydraulic Fluids)
Florida Steel
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Indiantown, Florida 33456

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Director of Purchases
(Hydraulic Fluids)
Fluid Controls Incorporated
P. O. Box 49
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Director of Purchases
(Hydraulic Fluids)
Foote Mineral Company
Kemco Operation
Commercial Alley
Keokuk, Iowa 52632

Director of Purchases
(Hydraulic Fluids)
Friesland Plastics Co.
Friesland, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Formex Company
Austin Street
P. O. Box 330
Greenville, Tennessee

Director of Purchases
(Hydraulic Fluids)
Fulflo Specialties Co., Inc.
410 Fancy Ave.
Blanchester, Ohio

Director of Purchases
(Hydraulic Fluids)
Ft. Smith Industrial Foundation
P. O. Box 281
Ft. Smith, Arkansas 72901 Corp.

Director of Purchases
(Hydraulic Fluids)
W. P. Fuller & Co.
1645 W. Valencia Drive
Fullerton, Calif.

Director of Purchases
(Hydraulic Fluids)
Fraser Machine Products
6338 Lindmar Drive
Goleta, California 92017

Director of Purchases
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J. L. French Corporation
3101 S. Taylor Drive
Sheboygan, Wisconsin

Director of Purchases
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Gardner Denver Company
Gardner Expressway
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Director of Purchases
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General Casting Corporation
Route 6
Jefferson Valley, New York 10535

Director of Purchases
(Hydraulic Fluids)
Garlock Packing Co.
Palmyra, N.Y. 14522

Director of Purchases
(Hydraulic Fluids)
General Castings
14418 South San Pedro
Gardana, California

Director of Purchases
(Hydraulic Fluids)
Gates Rubber Co.
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Denver, Colorado 80217

Director of Purchases
(Hydraulic Fluids)
General Die Casting Co.
1075 Capitol
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(Hydraulic Fluids)
Gedney Electric Company
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General Dynamics Corporation
P. O. Box 748
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(Hydraulic Fluids)
General Cable Corporation
500 High Street
Perth Amboy, N. J.

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General Electric Company
4811 Chaffey Access Road
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Director of Purchases
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General Electric Company
~~Home Laundry Department~~
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General Electric
Atomic Power Equipment Department
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Director of Purchases
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General Electric Company
Glass Mich. Operation
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Director of Purchases
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General Electric Company
Ellis Street
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Director of Purchases
(Hydraulic Fluids)
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General Electric Co.
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Director of Purchases
(Hydraulic Fluids)
General Electric Company
Lamp Metals & Components
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General Electric Company Fluids
Service Shops
669 East Highland Street
Allentown, Pennsylvania

Director of Purchases
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General Electric Company
1801 South 12th Street
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Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Delco Battery Operations
Delco Remy Division
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Director of Purchases
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General Motors Corporation
Chevrolet Bay City Plant
100 Fitzgerald Street
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Director of Purchases
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General Motors Corporation
Delco Remy Division
~~Accounts Payable Department~~
Anderson, Indiana 46014

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General Motors Corporation
Chevrolet Gear & Axle & Forge Divn.
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Director of Purchases
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General Motors Corporation
Buick Motor Division
Hamilton Avenue
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Guide Lamp Division
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(Hydraulic Fluids)
General Motors Corporation
Chevrolet Motor Division
Livonia Plant
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Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Delco Radio Division
Kokomo, Indiana

Director of Purchases
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General Motors Corporation
Proving Grounds
Accounts Payable
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Director of Purchase
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General Motors Corporation
Pontiac Motor Division
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(Hydraulic Fluids)
General Motors Corporation
Chevrolet Motors Division
Attn: Financial Department
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Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Central Foundry Division
77 West Center Street
Saginaw, Michigan

Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Chevrolet Motors Division
Roosevelt Town
Massena, New York 13662

Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Chevrolet-Saginaw Grey Iron Foundry
10th and Washington
Saginaw, Michigan

Director of Purchases
(Hydraulic Fluids)
General Motors Corporation
Fisher Body Division
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Chevrolet Motors Division
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Definace Plant
Definace, Ohio

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Chevrolet Motor Division
Buffalo Plant
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General Motors Corporation
New Departure
Hyatt Bearings
Sandusky, Ohio 44871

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General Tire and Rubber
1708 Eaglewood Avenue
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Getty Oil Company
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Tidewater Building
Los Angeles, California

Director of Purchases
(Hydraulic Fluids)
General Shale Products, Inc.
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Director of Purchases
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P. O. Bin H
Taft, California 93268

Director of Purchases
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Coalinga, California

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Gerard Metal Craftsman
151 West Rosecrans Avenue
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GHR Foundry Division
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(Hydraulic Fluids)
Garity Schultz Corporation
1310 Clinton Avenue
Toledo, Ohio 43607

Director of Purchases
(Hydraulic Fluids)
Giddings & Lewis Machine & Tool Co.
142 Doty Street
Toledo, Ohio 43607

Glidden-Durkee Division
SCM Corporation
216 Sproul Road
Huron, Ohio 94710

o/m . 11 M 3 M 11A

Director of Purchases
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Glen-Gery Corporation
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East Canton, Ohio 44730

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(Hydraulic Fluids)
Gilmore Industries Inc.
3355 Richmond Road
Cleveland, Ohio 44122

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(Hydraulic Fluids)
Glenvale Products Division
Hoover Ball Bearing Company
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Malvern, Arkansas 72104

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GIM Metal Products Inc.
164 Glen Cove Road
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Director of Purchases
(Hydraulic Fluids)
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900 Union Commerce Bldg.
Cleveland, Ohio

Director of Purchases
(Hydraulic Fluids)
Glass Rock Products
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Atlanta, Georgia 30319

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Glass City Tool and Die Co.
1402 Enterprise Boulevard
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Director of Purchases
(Hydraulic Fluids)
Globe Industries Inc.
1784 Stanley Avenue
Dayton, Ohio

Director of Purchases
(Hydraulic Fluids)
Golden Foundry Company
1616 10th Street
Columbus, Indiana 47201

Director of Purchases
(Hydraulic Fluids)
Goulds Pumps Incorporated
Seneca Falls,
New York 13148

Director of Purchases
(Hydraulic Fluids)
The Goodyear Tire & Rubber Co.
Akron,
Ohio 44315

Director of Purchases
(Hydraulic Fluids)
Grand Steel & Mfg. Co.
1400 West 14 Mile Road
Clawson, Michigan 48017

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(Hydraulic Fluids)
Goshen Rubber Co. Inc.
P.O. Box 416
Goshen, Ind. 46526

Director of Purchases
(Hydraulic Fluids)
Granite City Steel Company
Granite City,
Illinois

Director of Purchases
(Hydraulic Fluids)
Goslin-Birmingham, Inc.
8th Avenue and 33rd Street North
Birmingham, Alabama 35222

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Great Lakes Carbon Corporation
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Carondelet Station
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St. Louis, Missouri 63111

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Gould Incorporated
Clevite Bearing Division
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Great Lakes Gas Transmission Co.
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(Hydraulic Fluids)
Great Western Sugar Company
Terminal Annex
P. O. Box 5308
Denver, Colorado

Director of Purchases
(Hydraulic Fluids)
Grinnell Corporation
P. O. Box 59
Columbia, Penn. 17512

Director of Purchases
(Hydraulic Fluids)
A. P. Green Refractories
Mexico,
Missouri 65265

Director of Purchases
(Hydraulic Fluids)
Grotnes Machine Works Inc.
5454 North Wolcott
Chicago, Illinois 60640

Director of Purchases
(Hydraulic Fluids)
Greene, Tweed & Co.
North Wales, Pa. 19454

Director of Purchases
(Hydraulic Fluids)
Gulf Coast Aluminum Corp.
P. O. Box LL
Lake Charles, La. 70601

Director of Purchases (Hydraulic
Greer Hydraulics, Inc. Fluid)
5930 West Jefferson Blvd.
Los Angeles, Calif.

Director of Purchases
(hydraulic Fluids)
Gulf Oil Corporation
Stillwater, Oklahoma

Director of Purchases
(Hydraulic Fluids)
Griffin Pipe Products Co.
R. D. Plant
1100 West Front Street
Florence, N. J. 08518

Director of Purchases
(Hydraulic Fluids)
Gulf Oil Corporation
P. O. Box 1166
Gulf Building
Pittsburgh, Pennsylvania

Director of Purchases
(Hydraulic Fluids)
Gulf Oil Corporation
Chemical Department
Orange, Texas 77630

Director of Purchases
(Hydraulic Fluids)
Gulf States Tube Corporation
P. O. Box 952
Rosenberg, Texas 77471

Director of Purchases
(Hydraulic Fluids)
Hallenberger Incorporated
P. O. Box 5085
Evansville, Indiana 47711

Director of Purchases
(Hydraulic Fluids)
Harrison & Harrison
6903 W. 30th Street
Berwyn, Illinois 60402

Director of Purchases
(Hydraulic Fluids)
Hamco Division
Kayex Corporation
1000 Millstead Way
P. O. Box 8920
Rochester, New York 14624

Director of Purchases
(Hydraulic Fluids)
Harrison Machine Company
3118 Station Road
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Wesleyville, Erie, Pa. 16510

Director of Purchases
(Hydraulic Fluids)
Hamilton Diecasting Corp.
2020 Jericho Turnpike
New Hyde Park
New York 11401

Director of Purchases
(Hydraulic Fluids)
Hanna Nickle Smelting Company
Riddle,
Oregon 97469

Director of Purchases
(Hydraulic Fluids)
H. M. Harper Company
8700 Le High Avenue
Morton Grove, Illinois 60053

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Harvey Aluminum
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Lewisport, Kentucky 43251

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Harvey Aluminum Incorporated
19200 South Western Avenue
Torrance, California 90509

Director of Purchases
(Hydraulic Fluids)
Harvey Aluminum Reduction Division
P. O. Box 711
The Dalles, Oregon

Director of Purchases
(Hydraulic Fluids)
H. L. Harvill Manufacturing Co.
24201 Orange Avenue
Perris, California

Director of Purchases
(Hydraulic Fluids)
Harvey Aluminum of Washington
Box Route 677
P. O. Box 677
Goldendale, Washington 98620

Director of Purchases
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Hatco Chemical Division
W. R. Grace & Company
King George Post Road
Fords, New Jersey 08863

Director of Purchases
(Hydraulic Fluids)
W. R. Grace & Company
Nitrogen Products
P. O. Box 277
Memphis, Tenn. 38101

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Heat & Control
225 Shaw Road
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Director of Purchases
(Hydraulic Fluids)
Havenly Products Company
Box 222
St. Clair Shores, Michigan

Director of Purchases
(Hydraulic Fluids)
Heisler Machine & Tool Company
224 Passaic Avenue
Fairfield, N. J. 07006

Director of Purchases
(Hydraulic Fluids)
Hawthorne Melody Farms Dairy
4201 West Chicago Avenue
Chicago, Illinois 60651

Director of Purchases
(Hydraulic Fluids)
Helmerich & Payne Intl.
Utica & 21st Street
Tulsa, Oklahoma 74114

Director of Purchases
(Hydraulic Fluids)
Hays Manufacturing Company
12th and Liberty Streets
Erie, Pennsylvania 16512

Director of Purchases
(Hydraulic Fluids)
Hercules Incorporated
Radford Arsenal
Radford, Virginia

Director of Purchases
(Hydraulic Fluids)
Healey Brass Foundry, Inc.
P. O. Box 4163
Station A
Evansville, Indiana 47711

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(Hydraulic Fluids)
Hercules Packing Corp.
11061 Walden Rd.
Alden, N. Y. 14004

Director of Purchases
(Hydraulic Fluids)
Herman Pneumatic Machine Co.
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(Hydraulic Fluids)
Hilliard Corporation
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Elmira, New York 14902

Director of Purchases
(Hydraulic Fluids)
Hesik Company Inc.
2220 N. Merced
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(Hydraulic Fluids)
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(Hydraulic Fluids)
High Voltage Power Corporation
Walk Up Drive
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(Hydraulic Fluids)
Hilliard Corp.
98 W. Fourth Street
Elmira, N. Y.

Director of Purchases
(Hydraulic Fluids)
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(Hydraulic Fluids)
Hooker Chemical Corporation
P. O. Box 344
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Holly Hydraulics Inc. *3-10-60*
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Director of Purchases
(Hydraulic Fluids)
Holt Industries, Inc.
5221 Lincoln Boulevard
Venice, California

Director of Purchases
(Hydraulic Fluids)
Hot Springs Brass and Foundry Co.
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Honeywell Incorporated
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Honeywell Incorporated
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(Hydraulic Fluids)
Humble Oil & Refining Company
Benicia Refinery
Benicia, California

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(Hydraulic Fluids)
HPM Company
Divn. of Koehring Co.
Marion Road
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(Hydraulic Fluids)
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Glass Container Corporation
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4421 West 31st Street
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(Hydraulic Fluids)
Huffaker Plumbing and Heating Co.
705 Front Street
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Director of Purchases
(Hydraulic Fluids)
Hyatt Die Casting & Engineering Co.
4656 Lincoln Avenue
Cypress, California 90630

Hydranamics Systems ?

Cochiti Dam & Reservoir

Penablanca, New Mexico

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(Hydraulic Fluids)
Hydraulic & Air Equipment Co.
1925 N.W. Quimby Street
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Director of Purchases
(Hydraulic Fluids)
Hydraulic Service Company
522 Township Line Road
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Director of Purchases
(Hydraulic Fluids)
Hydro Conduit Corporation
P. O. Box 939
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Director of Purchases
(Hydraulic Fluids)
Illinois Brick Company
Block Plant 2
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Blue Island, Illinois

Director of Purchases
(Hydraulic Fluids)
Illinois Lock Company
301 West Hintz Road
Wheeling, Illinois 60090

Director of Purchases
(Hydraulic Fluids)
Impact Die Casting Corporation
1212 East Sixth Street
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Director of Purchasing
(Hydraulic Fluids)
Imperial Eastman Corp.
6300 W. Howard Street
Chicago, Ill.

Director of Purchases
(Hydraulic Fluids)
Ideal Fishing Float Co., Inc.
2001 East Franklin Avenue
Richmond, Virginia

Director of Purchases
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Inductotherm Corporation
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Industrial Castings Inc.
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(Hydraulic Fluids)
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Director of Purchases
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Ingersoll-Rand Company
Industrial Park
Campbellville, Ky. 42718

Director of Purchases
(Hydraulic Fluids)
Interlake Steel Corporation
135th & Perry Avenue
Chicago, Illinois 60627

Director of Purchases
(Hydraulic Fluids)
Ingram Richardson, Inc.
Frankfort,
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Director of Purchases
(Hydraulic Fluids)
Intermarine Services, Inc.
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Finishes Div.
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Mr. Bill Mihalo, Sr. Lube Engineer
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Director of Purchases
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International Business Machines
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(Hydraulic Fluids)
Interstate Manufacturing Corp.
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Town of Islip
Department Waste Disposal
Brookwood Hall
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International Cast Products, Inc.
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Director of Purchases
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International Tool & Supply Co.
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Director of Purchases
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International Harvester Co.
Melrose Park Works
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Ireco Industries Incorporated
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International Packing Corp.
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County of Suffolk
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International Paper Company
Southern Kraft Division
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Mobile, Alabama 36601

Director of Purchases
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St. Louis, Missouri

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International Smelting
Elm Street
Perth Amboy, N. J.

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(Hydraulic Fluids)
ITT Cannon Electric Company
666 East Dryer Road
Santa Ana, California

Director of Purchases
(Hydraulic Fluids)
ITT Controls and Instruments
801 Allen Avenue
Glendale, California

Director of Purchases
(Hydraulic Fluids)
ITT Federal Support Services, Inc.
Federal Building
Box 100
Richland, Wash. 99352

Director of Purchases
(Hydraulic Fluids)
ITT Rayonier Incorporated
P. O. Box 299
Hoquiam, Washington 98550

Director of Purchases
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Jackes-Evans Manufacturing
11737 Administration Drive
West Port Industrial Park
St. Louis, Missouri 63141

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Ben Johnson Associates, Inc.
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Bangor, Pennsylvania 18013

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Jade Corporation
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Bethayres, Pennsylvania 19006

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Johnson City Foundry &
Machine Works, Inc.
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Johnson City, Tennessee

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Lake Tenikeler
Star Route
Vian, Oklahoma 74926

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3399 N.W. So. River Drive
Miami, Florida

Director of Purchases
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John Mohr
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Chicago, Illinois 60617

Director of Purchases
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J&S Foundry
Airport
Bartlesville, Okla.

Director of Purchases
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Johns-Manville
22 E. 40th Street
New York, N. Y. 10016

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c/o J&L Steel Corporation
Hennepin Works Division
Hennepin, Illinois 61327

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Blast Furnace Crow Island
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De Queen, Ark. 71832

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Kaiser Industrial Corporation
P.O. Box 2626
Airport Sta. Oakland Intl. Airport
Oakland, Calif. 94614

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Kux Machine Mfg. Company
515 North Washington
Sauginaw, Mich. 48607

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Kelsey Hayes Company
Gunit Division
Rockford, Ill. 61100

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Kaiser Aluminum & Chemical Corp.
P. O. Box 89
Oakland, California 94604

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Colesville Road
Binghamton, New York 13902

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Kaiser Aluminum & Chemical Corp.
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Spokane, Washington

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Kasper Foundry Company
P. O. Box 549
Elyria, Ohio 44035

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Kaiser Aluminum & Chemical Corp.
3400 Taylor Way
Tacoma, Washington 98421

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Kawecki Chemical Company
Wenatchee Works
P. O. Box 1704
Wenatchee, Washington 98801

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Butler, Penn. 16001

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Jonesboro, Georgia 30236

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Kamin Die Casting
3315 North Knox
Chicago, Illinois 60641

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M. W. Kellogg Company
711 Third Avenue
New York, New York

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Kelsey Hayes Company
38481 Huron River Drive
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Detroit, Michigan 48174

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c/o American Potash & Chemical Corp
Kerr McGee Building
Oklahoma City, Okla. 73102

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14418 S. San Pedro Street
Gardena, California 90247

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6900 S. Adams Street
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Erie, Pennsylvania 16512

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P. O. Box 30407
Baltimore 26, Maryland

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Keystone Fluid Systems, Inc.
North Nevilles & 38th Street
Pittsburgh, Penn. 15201

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Kennecott Copper Corporation
161 East 42nd Street
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2100 South Wolf Road
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Grand Rapids, Mich. 49507

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Koppers Building
Room 1322
Pittsburgh, Pa. 15219

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Purchasing Department
Drawer 9, Central Station
St. Louis, Missouri 63188

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Division of Larsen Power Plant
Lakeland, Florida.

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~~Arcade Building~~
St. Louis, Missouri
16 S. Broadway

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Lantana, Fla. 33460

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St. Louis, Mo.

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Latrobe, Penn.

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Pacific Division
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Furnace Division
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Bedford, Ohio 44146

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Ingalls East Division
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Pascagoula, Mississippi

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Lewis Products
Hohenwald, Tenn. 38462

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Seco Road
Monroeville, Penn. 15416

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3220 Thornton Avenue
Burbank, California 91503

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Toledo, Ohio

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Logansport, Indiana 46947

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Logi Trol Incorporated
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Maryland Heights, Mo. 63043

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Buckner, Missouri

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340 Crocker
Los Angeles, California

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Third & Madison Streets
Dayton, Ohio

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P. O. Drawer 411
Lynchburg, Virginia 28501

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Madison, Wisconsin 53704

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Bradley, Ill.

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San Manuel Division
Refinery Warehouse
San Manuel, Arizona 85631

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539 South Main
Findlay, Ohio 45840

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Magna Coatings & Chemical Corp.
1785 N. Eastern Ave.
Los Angeles, Calif. *Refinery*

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Marion Bronze Co.
Marion, Ohio

Director of Purchases
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Magnesium Casting Company
98 Business Street
Hyde Park, Boston, Massachusetts

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Marine Purchasing Corp.
60 Broad Street
New York, N.Y. 10004

Director of Purchases
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Magnus Metal Company
1029 West 7th Street
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C. W. Marsh Co.
36 Hudson Street
Muskegon, Mich. 49441

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G.C. Marshall Space Flight Center
Bldg. 4485
Huntsville, Ala. 35812

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Marvel Engineering Co.
7227 N. Hamlin Ave.
Chicago 45, Ill.

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(Hydraulic Fluids)
Mc Cullough Corp.
6101 W. Century Blvd.
Los Angeles, Calif. 90045

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Masten Corp.
3555 West Addison
Chicago, Ill. 60618

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McDonnell-Douglas Astronautics Co.
Accounts Payable
5301 Balsa Ave.
Santa Monica, Calif. 92647

Director of Purchases
(Hydraulic Fluids)
Materials Transportation Co.
1685 N. Elston Ave.
Chicago, Ill. 60622

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Brown Rd.
St. Louis, Mo.

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Zinc Co.
LaSalle, Ill. 61301

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McGraw Edison Co.
333 West River
Elgin, Ill. 60120

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Mayer & Oswald
Maybrook Square
Maywood, Ill. 60153

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McGraw Edison Co.
Tupelo, Mississippi 38801

Director of Purchases
(Hydraulic Fluids)
McGraw Edison Company
Power Systems Division
12th & Madison Avenues
South Milwaukee, Wisc. 53172

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40 West Ridgewood Avenue
Ridgewood, N.J. 07450

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Arthur G. McKee & Co.
10 South Riverside Drive
Chicago, Ill. 60606

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Melamine Plastics Corp.
Div. Universal Mfg. Co.
516 W. Fourth Street
Winona, Minn.

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(Hydraulic Fluids)
McLouth Steel Corp.
300 South Livernois Ave.
Detroit, Mich.

Director of Purchases
(Hydraulic Fluids)
Mercer Alloys
P.O. Box 511
Greenville, Pa. 16125

Director of Purchases
(Hydraulic Fluids)
MDM Company
Box 144
Grain Valley, Mo. 64029

Director of Purchases
(Hydraulic Fluids)
Mercer Alloys Co.
Transfer, Pa.

Director of Purchases
(Hydraulic Fluids)
F. W. Means Co.
1225 W. High Street
Lexington, Ky. 40508

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(Hydraulic Fluids)
Merrill-Stevens *Hydlock*
Miami, Florida 33101
P.O. Box 1980

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(Hydraulic Fluids)
Metalart Buckle Co.
166 Valley Street
Providence, R. I. 02909

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(Hydraulic Fluids)
Michigan Standard Alloys, Inc.
P.O. Box 691
Benton Harbor, Mich. 49022

Director of Purchases
(Hydraulic Fluids)
Meta Mold Aluminum Co.
525 E. Hamilton
Cederberg, Wis.

Director of Purchases
(Hydraulic Fluids)
Michigan Wisconsin Pipe Co.
One Woodward Ave.
Detroit, Mich. 48226

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(Hydraulic Fluids)
Methodist Hospital
6516 Bertner Drive
Houston, Tx. 77025

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(Hydraulic Fluids)
Micro Switch
Freeport, Ill. 61033

Director of Purchases
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Metropolitan Edison Co.
P.O. Box 542
Reading, Pa. 19603

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Mid American Canning Corp.
US 41A at Tucker
Schoolhouse Rd.
Madisonville, Ky. 42431

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(Hydraulic Fluids)
Meuir Engineering & Mfg. Co.
North Tennessee
McKinney, Tex. 75069

Director of Purchases
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Midland Div.
Dexter Corp.
1785 N. Eastern Ave.
Los Angeles, Calif. 90032

Director of Purchases
(Hydraulic Fluids)
Midland Ross Corporation
920 Illinois Avenue
Maumee, Ohio 43537

Director of Purchases
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Milwaukee Die Casting Co.
4132 N. Holton Street
Milwaukee, Wis. 53211

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Electrical Products
Highway 11 Bypass
Congress Parkway
Athens, Tenn.

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Minnesota Rubber Co.
3630 Wooddale Ave.
Minneapolis, Minn. 55416

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(Hydraulic Fluids)
Midwest Fluid Power Co.
4325 Harris Street
Toledo, Ohio 43613

Director of Purchases
(Hydraulic Fluids)
Minnesota, Mining & Mfg. Co.
P. O. Box 33121
St. Paul, Minnesota 55133

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Midwest Foundry Co.
Division L. A. Darling Co.
Coldwater, Mich.

Director of Purchases
(Hydraulic Fluids)
Minnkota Paper Coop, Incorporated
P.O. Box 127
Center, N. C. 58530

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(Hydraulic Fluids)
Miller Tool & Die Co.
835 Belden Rd.
Jackson, Mich. 49203

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Mirro Aluminum Co.
Plant 2
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Mission Corp.
c/o Skelly Oil Co.
P.O. Box 1650
Tulsa, Okla. 74119

Director of Purchases
(Hydraulic Fluids)
Mobil Oil Corp.
150 E. 42nd Street
New York, N. Y. 10017

Director of Purchases
Missouri Rogers Corp.
Missouri Casting Div.
P.O. Box 1385
905 E. Third Street
Joplin, Mo. 63801

Director of Purchases
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4 Penn Center Plaza
16th and J. F. Kennedy Blvd.
Philadelphia, Pa. 19103

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Mobil Chemical Co.
Chemical Coatings Div.
P.O. Box 1388
Plainfield, N. J. 07062

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(Hydraulic Fluids)
P.O. Box 3311
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Los Angeles, Calif. 90054

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5419 N. Kedzie Ave.
Chicago, Ill. 60640

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Mobil Oil Division
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Paulsboro, N.J. 08066

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336 S. Spring Street
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Santa Fe Springs, Calif. 90670

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Montgomery Elevator Co.
4135 Brownsville Rd.
Pittsburgh, Pa. 3

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Moffitt Incorporated
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Penna Route 136
Eighty Four, Pa. 15330

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Jack Morris
Neddesha, Kansas 66754

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Moline Malleable Iron Co.
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Broadway & PPR
Alliance, Ohio 44601

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Monsanto Research
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2101 E. John Street
St. Louis, Mo.

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Montana Power Fluids)
Purchasing Dept.
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Butte, Montana 59701

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Mueller Brass Co.
Port Huron, Mich.

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Mueller Co.
630 Lambert
Brea, Calif. 92621

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Mueller Company
Chattanooga, Tennessee 37401

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Murdock Incorporated
15800 S. Avalon Blvd.
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E. Palestine, Ohio 44413

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North Avenue
Garwood, N. J.

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(Hydraulic Fluids)
Nassau Smelting & Refining Co.
1 Nassau Place
Staten Island, N.Y. 10307

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Plastics Division
1002 Seventh Street
Rockford, Illinois 61108

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Tottenville, New York

National Machinery
Director of Purchases
(Hydraulic Fluids)
Greenfield & Staunton Streets
Tiffin, Ohio 44883

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(Hydraulic Fluids)
National Aluminum
c/o Brown & Root
Hawesville, Ky. 42348

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National Metal Abrasive Co.
3560 Norton Rd.
Cleveland, Ohio 44111

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National Cooperative Fluids)
Refinery Association
McPherson, Kansas

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(Hydraulic Fluids)
National Metallurgical
1801 South A Street
P.O. Box 56
Springfield, Oregon 97477

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(Hydraulic Fluids)
National Starch & Chemical
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Plainfield, N.J. 07063

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Los Angeles, Calif. 90003

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Natural Gasoline Co., Inc.
Box 700
Wichita, Kansas

Director of Purchases
(Hydraulic Fluids)
City of New Madrid
c/o Noranda Aluminum Inc.
P.O. Box 70
New Madrid, Mo. 63869

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(Hydraulic Fluids)
Natural Gas Pipe Line Co. of Am.
122 S. Michigan Ave.
Chicago 3, Ill.

Director of Purchases
(Hydraulic Fluids)
Newman Machine Co. Inc.
P.O. Box 5467
Greensboro, N.C. 27403

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(Hydraulic Fluids)
Natural Gas Pipe Line Co. of Am.
Box 72
Highway 34
Jackson, Mo. 63755

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Titanium Div.
Carondelet Station
St. Louis, Mo.

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(Hydraulic Fluids)
Nefco Filter Corp.
Box 280
Stoughton, Wis. 53589

Director of Purchases
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Noranda Mines
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New Madrid, Mo. 63869

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Cleveland, Ohio 44105

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(Hydraulic Fluids)
Nordberg, Mfg. Co.
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Milwaukee, Wis. 53201

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1700 E. Imperial Highway
El Segundo, Calif.

Director of Purchases
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Normal Engineering Company
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Los Angeles, Calif. 90019

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Norris Industries Fluids)
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TMW Division
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Reading, Pa. 19603

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North American Foundry Co.
4721 Zero Street
Fort Smith, Arkansas 72901

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St. Paul, Minn. 55106

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Rochester, N.Y.

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Nycoote Laboratories
15002 Delano Street
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Northland Resources
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Rangely, Colorado

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Aircraft Div.
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Hawthorn, Calif. 90250

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Northwestern Steel & Wire
121 Wallace Street
Sterling, Ill. 61081

Director of Purchases
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Novamont Corp.
Neal Works
P.O. Box 189
Kenova, W.Va. 25530

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Oak Mfg. Co.
650 S. Avenue 21
Los Angeles, Calif. 90031

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(Hydraulic Fluids)
Ohio Crankshaft Div.
Park Ohio Industries Incorporated
3800 Harvard Ave.
Cleveland, Ohio 44105

Director of Purchases
(Hydraulic Fluids)
Obear Nester Glass Co.
Lincoln Plant
Lincoln, Ill. 62656

Ohio Energy Systems
Director of Purchases
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1055 W. 3rd Street
Columbus, Ohio 43212

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Ocean Drilling & Exploration Co.
P.O. Box 61780
1600 Canal Street
New Orleans, La. 70160

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(Hydraulic Fluids)
Oil States Rubber Co.
P.O. Box 670
Arlington, Tx. 76010

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Ogden Engineering Company
Division & Kennedy
Schererville, Indiana

Director of Purchases
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Olin Corporation
Associated Products Operations
East Alton, Illinois

Director of Purchases
(Hydraulic Fluids)
Ohio Brass Co.
300 N. Diamond Street
Mansfield, Ohio 44902

Director of Purchases
(Hydraulic Fluids)
Olin Corporation
P.O. Box 736
Sedalia, Mo. 65301

Director of Purchases
(Hydraulic Fluids)
Olin Corp.
P.O. Box 164
Hannibal, Ohio 43931

Director of Purchases
(Hydraulic Fluids)
Ormet Corp.
P.O. Box 176
Omal, Ohio 43931

Director of Purchases
(Hydraulic Fluids)
Omark Industries
Williams Air Control Div.
14100 S.W. 72nd
Portland, Oregon 97223

Director of Purchases
(Hydraulic Fluids)
Osborn Mfg. Co.
5401 Hamilton Ave.
Cleveland, Ohio 43219

Director of Purchases
(Hydraulic Fluids)
Orange County Diecasting
1367 N. Santiago Ave.
Santa Ana, Calif. 92705

Director of Purchases
(Hydraulic Fluids)
Oswego Casting Corp.
Mitchell Street
Oswego, N.Y. 13126

Director of Purchases (Hydraulic
(Oregon Steel Mills) Fluids)
5200 N.W. Front Ave.
Portland, Oregon 97210

Director of Purchases
(Hydraulic Fluids)
Outboard Marine Corp.
Gale Products Co. Div.
Monmouth Blvd.
Galesburg, Ill. 61401

Director of Purchases
(Hydraulic Fluids)
Orlando Utilities Commission
P.O. Box 3193
Orlando, Fla. 32801

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(Hydraulic Fluids)
Outboard Marine
Waukegan, Ill. 60085

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(Hydraulic Fluids)
Overmyer Corp.
Winchester, Indiana 47394

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Owens Illinois, Incorporated
Alton, Illinois 62202

Director of Purchases
(Hydraulic Fluids)
Overton Foundry
9850 Adella Street
South Gate, Calif.

Director of Purchases
(Hydraulic Fluids)
Owens Illinois
Levis Development Park
25875 U.S. Route 25
Perrysburg, Ohio 43551

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(Hydraulic Fluids)
Owens Aluminum Corp.
P.O. Box 164
Hannibal, Ohio 43431

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(Hydraulic Fluids)
Owens Illinois, Inc.
1510 N. Westwood Avenue
Toledo, Ohio 43607

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Owens Corning Fiberglass Corp.
P.O. Box 326
Kansas City, Kansas

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(Hydraulic Fluids)
Owens Illinois Incorporated
1700 N. Westwood Ave.
Toledo, Ohio 43607

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(Hydraulic Fluids)
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Anderson, S. Carolina

Director of Purchases
(Hydraulic Fluids)
Owens Illinois, Inc.
Glass Container Division
P.O. Box 592
Fairmont, West Virginia

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(Hydraulic Fluids)
Town of Oyster Bay
Sanitary Services Incinerator
Plant 2
Winding Road
Old Bethpage, N.Y.

Director of Purchases
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Pacific Gas Equipment Co.
P. O. Box 28188
Sacramento, Calif. 95828

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Paramount Diecasting Co.
Talon Division of Tectron
Freeman Field-Industrial
Seymour, Indiana

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Pacific Lighting Service Co.
P. O. Box 54790
Terminal Annex
Los Angeles, Calif. 90054

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(Hydraulic Fluids)
Park Ohio Industries
Tacco Div.
3800 Harvard
Cleveland, Ohio 43203

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32 Sea Cliff Ave.
Glen Cove, L.I., New York

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(Hydraulic Fluids)
Parker Hannifin Corp.
18321 Jamboree Blvd.
Irvine, Calif. 92664

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(Hydraulic Fluids)
Pan Am World Airways
P.O. Box 1412
Grand Central Station
New York, N.Y. 10017
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Parker Seal Co.
10567 Jefferson Blvd.
Culver City, Calif. 90230

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Panhandle Eastern Pipe Line Co.
P.O. Box 1348
Kansas City, Ks. 64141

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Parker Hannifin Corporation
5827 W. Century Blvd.
Los Angeles, Calif. 90045

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(Hydraulic Fluids)
Parker Hannifin Corporation
Pneumatic Division
500 S. Wolfe Road
Des Plaines, Ill.

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(Hydraulic Fluids)
Robert R. Parks Machinery Co.
P.O. Box 26348
Dallas, Texas 75226

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Ralph M. Parsons Company
P.O. Box 1449
Pascagoula, Miss. 49567

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(Hydraulic Fluids)
Pessley Products Incorporated
993 Honeyspot Road
Stratford, Conn. 06497

Director of Purchases
(Hydraulic Fluids)
Pennwalt Corporation
Calvert City, Ky.

Director of Purchases
(Hydraulic Fluids)
Peco Mfg. Co., Inc.
P.O. Box 02156
Portland, Oregon 97202

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Pennwalt Corp.
Stokes Div.
5500 Tabor Rd.
Philadelphia, Pa. 19120

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(Hydraulic Fluids)
Penn Controls Incorporated
Goshen, Indiana 46526

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2901 Taylor Way
Tacoma, Washington

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Penn Controls, Inc.
Baso Division
4000 W. Burnham Street
Milwaukee, Wis. 53215

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(Hydraulic Fluids)
Perfection Heat Treating Co.
1756 West Hubbard Street
Chicago, Ill. 60622

Director of Purchases
(Hydraulic Fluids)
Pennsylvania Refining Co.
Ohio Division
2685 Lisbon Rd.
Cleveland, Ohio 44104

Director of Purchases
(Hydraulic Fluids)
Permanent Casting Incorporated
P.O. Box 191
285 Shady Grove Rd.
Hot Springs, Ark. 71901

Director of Purchases
(Hydraulic Fluids)
Permatex Co.
Dept. T.R.
Flagler Court Bldg.
West Palm Beach, Fla.

Director of Purchases
(Hydraulic Fluids)
G. P. Pflieger
1501 Westoliff Drive
Suite 301
New Port Beach, Calif. 92560

Director of Purchases, (Hydraulic Fluids)
Petroleum Distributing Co., Inc.
P.O. Box 203
Houston, Tx. 77001

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George Pflieger
Lantana Boat Yard
808 North Dixie Highway
Lantana, Fla.

Director of Purchases
(Hydraulic Fluids)
Petrotonics Co.
P.O. Box 2450
Casper, Wyoming 92601

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Phelps Dodge Aluminum
Madison Works,
Madison, Ill. 62060

Director of Purchases
(Hydraulic Fluids)
Pevely Dairy Co.
Purchasing Department
Grand & Chouteau Avenue
St. Louis, Mo. 63103

Director of Purchases
(Hydraulic Fluids)
Phelps Dodge Copper Products
P.O. Box 20200
El Paso, Tx. 79998

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(Hydraulic Fluids)
Charles Pfizer & Co., Inc.
Vigo Plant
Terre Haute, Indiana 47080

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300 Park Ave.
New York, N.Y.

Director of Purchases
(Hydraulic Fluids)
Phelps Dodge Corporation
P. O. Box 391
Suffern, N. Y.

Director of Purchases
(Hydraulic Fluids)
Piping Systems
2705 Bernice Rd.
Lansing, Ill. 60438

Director of Purchases
(Hydraulic Fluids)
Phoenix Die Casting
23 Illinois Street
Buffalo, N.Y. 14230

Director of Purchases
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Pittsburgh De Moires Steel Co.
Neville Island
Pittsburgh, Pa. 15225

Rebeck

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Phoenix Steel
Claymont, Delaware 19703

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(Hydraulic Fluids)
PPP Industries, Inc.
Coatings & Resins Div. P.O. Box 45;
~~3 1/2 miles S. of U.S. Route 23~~
Circleville Ohio 43113

P. Rebeck

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311 Secon Street Southeast
Minneapolis, Minn. 55414

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(Hydraulic Fluids)
PPG - Glass Division
Works No. 26
Crestline, Ohio 44874

Director of Purchases
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Wm. S. Pine, Inc.
1635 East 22nd Street
Los Angeles, Calif. 90011

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(Hydraulic Fluids)
Pittsburgh Plate Glass Co.
One Gateway Center
Pittsburgh 22, Pa.

Director of Purchases
(Hydraulic Fluids)
PPG
Glass Division
Works No. 27
Tipton, Pa. 16684

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Ponka Drilling & Products Co.
Box 753
Rangely, Colorado 81648

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756 E. Florence Ave.
Los Angeles, Calif. 90001

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Pulp & Paperboard Div.
Lewiston, Idaho

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2100 Hyde Park Blvd.
Los Angeles, Calif. 90047

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(Hydraulic Fluids)
The William Powell Co.
2503 Spring Grove Ave.
Cincinnati, Ohio 45214

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Pollak Steel Company
912 Cheney Avenue
Marion, Ohio 43302

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Power Draulics Nielsen
550 South Columbus Ave.
Mt. Vernon, N.Y. 10550

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Pomona Diecast
1479 West Second Street
Pomona, Calif. 91766

Director of Purchases (Hydraulic
Powers Regulator Co. Fluids)
3400 Oakton Street
Skokie, Ill. 60076

Director of Purchases
(Hydraulic Fluids)
Pratt & Whitney Aircraft
400 Main Street
East Hartford, Conn. 06108

Director of Purchases (Hydraulic
Prescolite-Itco Plant Fluid)
Division of U.S. Industries
P.O. Box 151
El Dorado, Arkansas

Director of Purchases
(Hydraulic Fluids)
Precision Castings Co.
12600 Berea Rd.
Cleveland, Ohio 44111

Director of Purchases
(Hydraulic Fluids)
Press Automation Systems
Division U.S. Industries
3840 East Outer Drive
Detroit, Michigan 48234

Director of Purchases
(Hydraulic Fluids)
Precision Castparts Corp.
4600 S.E. Harney Drive
Portland, Oregon 97206

Director of Purchases
Pressure Castings Incorporated
21500 St. Clair Avenue
Cleveland, Ohio 44119

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Precision Rubber Products Corp.
Hartmann Drive
Lebanon, Tenn. 37087

Director of Purchases
(Hydraulic Fluids)
Prestolite
Division Eltra Corp.
West Springfield, Mass. 01089

Director of Purchases
(Hydraulic Fluids)
Precision Sheet Metal
5235 West 104th Street
Los Angeles, Calif. 90045

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(Hydraulic Fluids)
Prestolite Company
Divn. Eltra Corporation
West Springfield,
Massachusetts~~

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4701 Whitelake Rd.
Clarkson, Mich. 48016

Director of Purchases
(Hydraulic Fluids)
Puget Die Cast
Kux Machine Division
2100 South Wolf Road
Des Plaines, Ill. 60018

Director of Purchases
(Hydraulic Fluids)
Prince Mfg. Co.
P.O. Box 31
Holland, Mich. 49423

Director of Purchases
(Hydraulic Fluids)
Puget Die Casting
2101 S. Mildred Street
Tacoma, Washington 98466

Director of Purchases
(Hydraulic Fluids)
Process Equipment Co.
6555 South State
Route 202
Tipp City, Ohio 45371

Director of Purchases
(Hydraulic Fluids)
Purolator Products
1000 New Brunswick Ave.
Rahway, N. J.

Director of Purchases
(Hydraulic Fluids)
The Procter & Gamble Co.
Buying Dept.
P.O. Box 599
Cincinnati, Ohio 45201

Director of Purchases
PTE Corp.
1345 N. Tenth Street
San Jose, Calif. 95112

Director of Purchases
(Hydraulic Fluids)
The Quality Casting Co.
1225 N. Main Street
Orrville, Ohio 44667

Director of Purchases
(Hydraulic Fluids)
Racine Chicago Engr.
840 Filne Drive
Addiston, Ill. 60101

Director of Purchases
(Hydraulic Fluids)
Ralston Purina Company
P. O. Box 1725
St. Joseph, Mo. 64570

Director of Purchases
(Hydraulic Fluids)
Racine Hydraulic & Machinery Co.
Simplex Div.
Licking Road
Zanesville, Ohio

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Ralston Purina Fluids)
Health Products Plant
4142 North Union
St. Louis, Mo. 63115

Director of Purchases
(Hydraulic Fluids)
Radford Pipe Works
Lynchburg Foundry
Radford, Virginia

Director of Purchases
(Hydraulic Fluids)
Ralston Purina
76th and Highway 6
RR 3
Lincoln, Nebraska 68507

Director of Purchases
(Hydraulic Fluids)
Radiator Specialty Co.
P.O. Box 10628
Charlotte, N.C. 28201

Director of Purchases
(Hydraulic Fluids)
Ralston Purina Company
P. O. Box 26108
Oklahoma City, Okla 73126

X Hord
Director of Purchases
(Hydraulic Fluids)
Ralston Purina Company
P. O. Box 788
Clinton, Iowa 52732

Director of Purchases
(Hydraulic Fluids)
Ralston Purina Company
P. O. Box 248
Camp Hill, Penn. 17011

4621
Director of Purchases
(Hydraulic Fluids)
Ralston Purina Company
P. O. Box 356
Mechanicsburg, Pa. 17055

Director of Purchases
(Hydraulic Fluids)
Reactive Metals Incorporated
1000 Warren Avenue
Niles, Ohio 44446

Director of Purchases
(Hydraulic Fluids)
Ramm Products Co.
4436 Walker
Wayne, Mich. 48184

Director of Purchases
(Hydraulic Fluids)
Reading Metals Refining Corp.
Subsidiary of Reading Ind., Inc.
P.O. Box 1111
Reading, Pa. 19603

Director of Purchases
(Hydraulic Fluids)
Ranger Die Casting Co.
10828 South Alameda
Lynwood, Calif.

Director of Purchases
(Hydraulic Fluids)
Reading Tube Division
Reading Industries, Inc.
P.O. Box 126
Reading, Pa. 19603

Director of Purchases (Hydraulic
Raybestos-Manhattan, Inc. Fluids)
Packing Division
Passaic, N. J.

Director of Purchases
(Hydraulic Fluids)
Red Field Brick & Tile Co.
Redfield, Iowa 50233

Director of Purchases
(Hydraulic Fluids)
Reactive Metals, Incorporated
P.O. Box 720
Ashtabula, Ohio

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(Hydraulic Fluids)
Regina Corp.
Rahway, N.J. 07065
% United General Signal Corp.
313 Regina Ave.

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Reliable Rubber Products
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Remco Hydraulics
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Rex Chainbelt Incorporated
Hanna Fluid Power Div.
1765 Elston Ave.
Chicago, Ill. 60622

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Edward Rennburg & Sons, Inc.
2639 Boston Street
Baltimore, Maryland 21224

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(Hydraulic Fluids)
Reynolds Metals Company
Reduction Plant
Sheffield, Alabama

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(Hydraulic Fluids)
Republic Steel Corp.
P.O. Box 6778
Cleveland, Ohio 44101

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Reynolds Metals
P.O. Box 520
Arkadelphia, Arkansas

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(Hydraulic Fluids)
Republic Steel
Massillon, Ohio 43605

Director of Purchases (Hydraulic
Reynolds Metals Fluids)
Gum Springs, Arkansas

Director of Purchases
(Hydraulic Fluids)
Reynolds Metals Company
Jones Mills
Box 252
Malvern, Arkansas

Director of Purchases (Hydraulic
Reynolds Metals Co. Fluids)
10th & Byrd Streets
Richmond, Va.

Director of Purchases
(Hydraulic Fluids)
Reynolds Metals
P. O. Box 239
Brookfield, Illinois

Director of Purchases
(Hydraulic Fluids)
Reynolds Metals Company
P. O. Box 999
Longview, Wash. 98632

Director of Purchases
(Hydraulic Fluids)
Reynolds Metals
47th and 1st Avenue
McCook, Ill.

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(Hydraulic Fluids)
Richardson Chem. Cleaning Service
68 Liberty Street
Metuchen, N. J. 08840

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(Hydraulic Fluids)
Reynolds Metals Co.
P. O. Box 500
Massena, N.Y.

Director of Purchases
(Hydraulic Fluids)
Rich Mfg. Co.
P.O. Box 910
Corona, Calif. 91720

Director of Purchases
(Hydraulic Fluids)
Richtex Corp.
P.O. Box 3307
Columbia, S. C. 29203

Director of Purchases
(Hydraulic Fluids)
Ridco Casting Co.
1155 High Street
Central Falls, Rhode Island

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Ridge Foundry, Incorporated
1554 Doolittle Drive
San Leandro, Calif.

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Robinson Ventilating Co.
275 Henderson Street
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5935 Milford
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New York, N. Y. 10020

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Ritter Pfaudler
400 West Avenue
Rochester, N.Y. 14611

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Rockford Clutch
Division of Borg Warner
1200 Windsor Road
Rockford, Illinois 61101

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Rivett, Incorporated
51 Fremont Street
Needham Heights, Mass. 92194

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Rockwell Mfg.
Russellville, Ky. 42276

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Roane Electric Furnace
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P.O. Box 298
Rockwood, Tenn. 27854

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Rockwell Mfg.
400 N. Lexington Ave.
Pittsburgh, Pa. 15208

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Inc.
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Los Angeles, Calif. 90021

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Hazel Park, Mich.

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Rogers Hydraulics
Grante Falls, Minn. 45241

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Rotating Components Incorporated
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Independence Mall West
Philadelphia, Pa. 19105

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Pasadena, Calif.

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Ronson Metals Co.
55 Manufacturers Place
Newark, N. J. 07105

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Rucker Control Systems
4700 San Pablo Ave.
Oakland, Calif. 94608

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Roper Corp.
550 Wehrle Ave.
Newark, Ohio

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(Hydraulic Fluids)
Rust Engineering Co.
P.O. Box 549
Canton, Ohio 44701

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Rust Furnace Co.
930 St. Duquesne Blvd.
Pittsburgh, Pa. 15222

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344 West Genesee
Saginaw, Mich. 48605

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Box 2222
Cleveland, Ohio

General Motors Corp.
Director of Purchases
(Hydraulic Fluids)
Saginaw Steering Gear Div.
Saginaw, Mich. 48605
3900 *Holland Road*

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Samco, Inc.
1522 Wingerter
Akron, OH 44314

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Sawnee Plastics Incorporated
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Mantua, Ohio

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201 Rock Industrial Park Drive
Bridgeton, Mo.

Director of Purchases
(Hydraulic Fluids)
Sanders Associates
95 Canal Street
Nashua, N. H. 03060

Director of Purchases
(Hydraulic Fluids)
City of Salem Health Department
P.O. Box 266
Salem, Mass.

Director of Purchases
(Hydraulic Fluids)
Sanderson & Porter
c/o Keystone Steel and Wire
7000 S.W. Adams
Peoria, Ill.

Director of Purchases
(Hydraulic Fluids)
Schroeder Brothers Corp.
Box 72
McKees Rocks, Pa. 15136

Director of Purchases
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Selas Corp. of America
Drescher, Pa. 19025

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A. Schulmen, Inc.
Orange, Texas 77020

Director of Purchases
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Serfilco Div.
Service Filtration Corp.
7408 N. Milwaukee
Niles, Ill. 60648

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Scott Equipment Co.
272 Lee Street
Dayton, Ohio 45404

Director of Purchases
(Hydraulic Fluids)
Seven Up Co.
12201 Beach Daly Rd.
Detroit, Mich. 48239

Director of Purchases
(Hydraulic Fluids)
Souba Hut
2906 North Highway 71
Springdale, Arkansas

Director of Purchases
(Hydraulic Fluids)
Shaffer Tool Works
P.O. Box 4008
Beaumont, Tx. 77704

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(Hydraulic Fluids)
Sedco Incorporated
1901 Akard
Dallas, Tx. 75201

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Shalda Lighting Products
Hubbell Lighting
156 West Providence
Burbank, Calif. 91503

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(Hydraulic Fluids)
Sandvik Steel Incorporated
1704 Nevins Rd.
Fair Lawn, N. J. 07410

Director of Purchases
(Hydraulic Fluids)
Saran Protective Coatings Co.
2415 Burdette at Reed
Ferndale, Mich.

Director of Purchases
(Hydraulic Fluids)
Sangamo Electric Co.
P.O. Box 3347
Eleventh & Converse
Springfield, Ill. 62708

Director of Purchases
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Sargent Industries
Huntington Park Div.
2533 East 56th Street
Huntington Park, Calif. 90255

Director of Purchases
(Hydraulic Fluids)
San Jose Die Casting Co.
1422 Bergder Drive
San Jose, Calif. 95112

Director of Purchases
(Hydraulic Fluids)
Sayville Incinerator
Town of Islip
Lincoln Avenue
Long Island, New York

Director of Purchases
(Hydraulic Fluids)
Santa Fe Marine Incorporated
P.O. Box 16306
Houston, Tx. 77022

Director of Purchases
(Hydraulic Fluids)
Schaeffer Manufacturing Co.
102 Barton
St. Louis, Missouri

Director of Purchases
(Hydraulic Fluids)
Santomo Electric Company
#13 Venth & Converse
P. O. Box 359
Springfield, Illinois 62705

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(Hydraulic Fluids)
Schroeder Bros, Corp.
101 Nichol Ave
McKees Rocks, Pa.

Director of Purchases
(Hydraulic Fluids)
Shaler Company
Waupun, Wisconsin

Director of Purchases
(Hydraulic Fluids)
Shell Chemical Company
Plastics & Resins
P.O. Box 2633
Dear Park, TX 77536

Director of Purchases
(Hydraulic Fluids)
W. S. Shamban Co.
11617 W. Jefferson Blvd.
Culver City, Calif. 90230

Director of Purchases
(Hydraulic Fluids)
Shell Oil
50 West 50th Street
New York, N.Y. 10020

Director of Purchases
(Hydraulic Fluids)
Sharon Steel
P.O. Box 537
Sharon, Pa. 16146

Director of Purchases
(Hydraulic Fluids)
Shenago Co.
P.O. Box 400
Dover, Ohio 44622

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Union Oil Center
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Seminole, Okla. 74868

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Joliet Army Ammunition Plant
P. O. Box 871
Joliet, Illinois 60434

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Westinghouse Air Brake Company
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Wheeling, W. Va. 26003

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Peat Mfg. Div.
10711 E. Firestone Blvd.
Norwalk, Calif. 90650

Director of Purchases
(Hydraulic Fluids)
K. R. Wilson Div.
Chishalm-Ryder Co., Inc.
Arcade, N. Y. 14009

Director of Purchases
(Hydraulic Fluids)
Withrow Diecasting Co.
13164 Leadwell
North Hollywood, Calif. 91605

Director of Purchases
(Hydraulic Fluids)
Alan Wood Steel Works
Conshohocken, Penn.

Director of Purchases
(Hydraulic Fluids)
Wood Preservers Incorporated
Warsaw, Va. 22572

Director of Purchases
(Hydraulic Fluids)
Woodstock Diecasting Divn.
Eltra Corporation
555 Wheeler Street
Woodstock, Illinois 60098

Director of Purchases
(Hydraulic Fluids)
Wynn Oil Co.
1151 W. 5th Street
Azusa, Calif.

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Director of Purchases
(Hydraulic Fluids)
XLO Automotive Accessories, Inc.
45 John Street
Yonkers, New York

Director of Purchases
(Hydraulic Fluids)
Zapata Offshore Co.
1701 Houston Club Bldg.
Houston, Tx. 77002

Director of Purchases
(Hydraulic Fluids)
A. J. Zinda Co.
3509 N.W. Street
Helens Rd.
Portland, Oregon 97201

Director of Purchases
(Hydraulic Fluids)
Young & Bertke Co.
2118 Winchell Ave.
Cincinnati, Ohio 45214

Director of Purchases
(Hydraulic Fluids)
Youngstown Sheet & Tube Co.
Stambaugh Bldg.
Youngstown, Ohio