What Grades Mean

ROY W. LENNARTSON

The Agricultural Marketing Service administers extensive inspection and grading programs that have much to do with the quality and wholesomeness of foods we eat. They help consumers, producers, distributors, and retailers.

They have become essential in our complex distribution system. Just as pounds, dozens, and quarts are accepted as measurements of quantity, the terms U.S. Grade A, U.S. Fancy, U.S. Choice, and U.S. Inspected for Wholesomeness are accepted as official measurements of quality.

Federal grade standards and specifications have been established as nationally uniform measures of quality for more than 100 foods, including meat, dairy and poultry products, fruit and vegetables, and grain and grain products.

Programs that provide inspection of the wholesomeness of ready-to-cook poultry and continuous inspection services for plants processing fruit and vegetables also are available.

The use of Federal grade standards and the inspection service for processed fruit and vegetables are on a voluntary—not mandatory—basis.

Beginning in January 1959, all poultry and poultry products shipped in interstate commerce must be officially inspected for wholesomeness. This development placed poultry products on the same basis as red meat in this respect.

The First World War created the setting for official Federal inspection services. Standards for grades of beef for military procurement were developed, and a system of reporting market prices and supply conditions was established.

Then followed standards for fruit and vegetables, butter, and Cheddar cheese immediately after the war and for poultry and eggs in 1923.

The first mandatory Federal inspection program came with the Meat Inspection Act of 1906, which required that all meat in interstate commerce be federally inspected. It is administered by the Agricultural Research Service.

The Poultry Products Inspection Act was adopted in 1957 and became fully effective January 1, 1959. The act requires that all poultry and poultry products sold, shipped, or handled in interstate or foreign commerce be federally inspected and approved for wholesomeness.
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The most comprehensive legislation concerning inspection and grading of agricultural products is Title II of Public Law 733, known as the Agricultural Marketing Act of 1946. This act directed the Secretary of Agriculture: “To develop and improve standards of quality. . . . To inspect, certify, and identify the class, quality, quantity, and condition of agricultural products when shipped or received in interstate commerce, under such rules and regulations as the Secretary of Agriculture may prescribe . . . to the end that agricultural products may be marketed to the best advantage, that trading may be facilitated, and that consumers may be able to obtain the quality product which they desire. . . .”

Official standards of quality have been promulgated since 1918 for all major commodities and others of minor importance.

Originally they were developed for use by producers in preparing their product for markets and by distributors for trading in wholesale quantities and terminal market transactions. They continue to be of major importance in this respect.

More recently they have become increasingly useful to retailers in buying and selling and to consumers in buying.

The official grade standards reflect the opinions and needs of broad segments of the industry. No standard is promulgated or modified in any significant respect without giving the public a chance to express opinions about it. That is required by law under the Administrative Procedures Act. It also is essential to the development of objective and practical standards usable by interested persons and groups.

Official standards of quality are correlated closely with the standards of identity promulgated by the Federal Food and Drug Administration.

The use of official standards, with a few exceptions, is not mandatory. Their main value is to be a marketing aid to be used by producers, dealers, wholesale commission merchants, and retailers as they see fit. They provide a common language among producers and dealers for trading purposes for a commodity. They facilitate the development of standardization in buying procedures for many organizations. They have provided a merchandising instrument or technique in numerous food retailing establishments.

Official grade standards by themselves would have limited use or value in our distributive system. The Department of Agriculture, when grade standards were being developed, therefore began to establish an official system of inspection and grading.

Originally limited in scope, it has become nationwide and now is available at practically all major shipping points and major and secondary markets in all States.

Today the Agricultural Marketing Service employs some 4,500 Federal inspectors and graders. They inspect or grade or supervise the activities of some 8,500 State employees or individuals officially licensed by the Agricultural Marketing Service to inspect or grade food products.

The Department from the outset has followed a policy of encouraging cooperative activity with States and market agencies in the inspection and grading service. Some 296 cooperative agreements were in effect in 1959 for this purpose, mostly with State departments of agriculture. This policy has been effective in making the services readily and conveniently available to producers and dealers. It has done much to stimulate and maintain greater interest among those responsible for developing efficient marketing programs in States and communities.

The law requires that the permissive Federal inspection and grading services be supported by fees and charges to the user to cover as nearly as possible the cost of the service. This is not true generally with respect to the inspection or grading services that are mandatory.

As a voluntary program, for example, the poultry inspection service
was practically self-supporting through fees and charges assessed the users. In 1957 these charges totaled nearly 3 million dollars, and about 50 percent of all poultry shipped in interstate commerce was inspected under the program. After January 1, 1959, all plants processing poultry for interstate shipment must have inspection, but the cost of the service will be paid by Federal appropriation. The annual cost of the service will likely exceed 10 million dollars.

The inspection and grading services performed by the Agricultural Marketing Service involved expenditures of about 25 million dollars in 1957. Of this, about 18 million dollars were paid by users of the service under the permissive programs. In addition, an estimated 17.5 million dollars, derived primarily from fees and charges, were expended by local cooperating agencies.

The amount of fees and charges collected under the permissive programs gives some indication of the importance of official standards of quality in our marketing system.

Thus far we have dealt with the overall aspect of quality standards and their application and use. In order to present a more detailed picture of their application in terms of specific commodities, the rest of this chapter deals with these activities as they are administered in the Fruit and Vegetable, Livestock, Poultry, and Dairy Divisions of the Agricultural Marketing Service. These commodities are the main ones that consumers buy in the form or state in which they are certified as to quality or wholesomeness.

For example, although meat is graded in carcass or wholesale cut quantities, the grade stamp is applied in such a way as to carry through to the consumer. Butter similarly is graded in churn lots, but the pound print generally carries the grade designation for the consumer's benefit. In contrast, a bushel of U.S. No. 1 wheat loses its identity when it is processed into flour or breakfast food, for which there are no official grade standards.

The Fruit and Vegetable Division is responsible for the inspection of fresh fruit, vegetables, and related products (including such items as tree nuts and peanuts) and of processed fruit, vegetables, and a group of other products, such as honey, maple-syrup, coffee, and spices.

The use of the inspection services (like the use of the U.S. grades) is not compulsory, except in instances in which Federal or State marketing agreements and orders may require that marketings of a commodity be limited to specified grades and in which inspection for compliance with the prescribed grades is compulsory.

Most of the grade standards for fresh fruit and vegetables are designed for wholesale trading. With the more widespread use of prepackaged fresh fruit and vegetables, however, there has been a need for grade standards that are adapted especially to the retail level of trading. Several retail grades have been developed, as for potatoes, carrots, spinach, tomatoes, broccoli, celery, and corn on the cob.

Only a few vegetables and fruit are marked as to U.S. grade when displayed at retail, however, even though most of the transactions up to the retail level may have been made on the basis of these grades and the wholesale containers may have carried the mark.

The grades for fresh fruit and vegetables generally are designated by numbers, names, or a combination of the two. The basic trading grade is U.S. No. 1. Premium grades are established for some commodities, as U.S. Extra No. 1, U.S. Fancy, and U.S. Extra Fancy. Also, there are lower grades, as U.S. Commercial or U.S. Combination, U.S. No. 2, and U.S. No. 3.

Any product not meeting the lowest grade is designated as "unclassified."

The basic grade designation in the series of consumer standards is U.S. Grade A, the premium grade is U.S. Grade AA, and the lower grade is U.S. Grade B. "Unclassified" products in the trading standards become "Off-grade" in consumer standards.
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About 85 percent of the fruit and vegetable crop was packed in 1958, in accordance with Federal standards, and the equivalent of 1.4 million carloads was officially inspected.

The inspection service for fresh fruit and vegetables is organized and operated on a somewhat different basis from the service for processed products.

The inspection of fresh fruit and vegetables at shipping points is performed in cooperation with State agencies, usually the State department of agriculture. Inspectors are State employees, but are trained, licensed, and supervised for technical competence by the United States Department of Agriculture. Practically all inspections at shipping point are on a lot basis, usually railroad carloads or motortruck loads.

A second type of inspection of fresh fruit and vegetables is available on a Federal-State basis—the inspection of raw products to be used for processing against special Federal grade standards. It was developed with emphasis on the quality factors that processors pay most attention to. This inspection assures the grower that he receives full value for the quality of the raw material he delivers. It protects the processor against the delivery of produce of unacceptable quality and gives him information he can use in his processing operations: When he knows the quality of his raw material, he can better plan his operations to produce the type and quality of finished products that consumers want.

A third type of service is inspection in terminal markets. It usually is made to determine compliance with Federal or State grades claimed by shippers or to determine the condition of the produce, which may have deteriorated in transit to market.

Three types of official inspection service are available for processed products. The first is lot inspection, in which at the request of seller or buyer specific lots are inspected and certified as to U.S. grade or as meeting the applicant's specifications.

Continuous inspection is available to processors who meet high standards of sanitation for plant and equipment. Inspectors are stationed in the plant at all times it is operating. The inspector checks sanitation, observes preparation of all raw materials, selects samples of the product at random, and issues daily reports. When final inspection of the finished product is completed, he issues certificates, as requested, showing the final grade of each lot packed. All products packed are eligible for labeling with the U.S. grade and a statement as to continuous inspection.

Pack certification also is available to processors whose plants meet the sanitary standards and use acceptable raw material. An inspector is assigned to the plant during the processing season to inspect and certify each lot of the product as it is packed. He also observes preparation of the raw material and checks the cleanliness of the plant. He need not be present at all times during the processing operations, as is required under continuous inspection.

Grade designations for processed fruit appear as a combination of letter and name. The top grade is U.S. Grade A or U.S. Fancy. The lower grades are U.S. Grade B or U.S. Choice and U.S. Grade C or U.S. Standard. Any product not meeting the lowest grade is designated as substandard.

Processed vegetables carry the same designation, except that the second grade is U.S. Grade B or U.S. Extra Standard. About 60 percent of the canned and 90 percent of the frozen production were packed in accordance with Federal standards in 1958, and 300 million cases of processed products were officially inspected.

THE LIVESTOCK DIVISION administers programs to develop grade standards and purchase specifications and to grade livestock and meat.

Safeguards providing for the purity and wholesomeness of meat entering interstate commerce is a responsibility
of the Agricultural Research Service under the Meat Inspection Act. Similar protection is provided by requirements as to minimum sanitation and inspection of the Agricultural Marketing Service as a prerequisite for the grading of meat that is not inspected federally.

Federal grade standards are used in the grading of meat and in the livestock and meat market reporting services of the Agricultural Marketing Service. In addition, the official grade standards are used as references in all trading and so form a common language for identifying characteristics of quality in private transactions throughout the entire process of converting livestock to meat. They serve as guides to producers in planning production to meet particular desires of the market and in determining the best time and place to market livestock.

Grade is an important part of the evaluation of animals by buyers and sellers at the livestock market. Packers are concerned with grade in many of their operations—buying livestock, selecting a product for a particular use, and selling meat. In meat distribution at wholesale and retail, Federal grades also are a uniform designation of quality. Thereby they facilitate transactions.

Consumers have placed increasing reliance on grade as an assurance of the quality of meat they desire and as a guide in the selection of the cooking method and use for various cuts. Federal grades thus serve the function of reflecting consumers' desires to producers at all stages of marketing.

Purchase specifications also provide a device by which to evaluate specific factors. Specifications for use in meat procurement, however, normally prescribe requirements for several factors besides grade. As an example, weight selections, cutting and trimming methods, details of processing, ingredient formulas, packaging, and similar requirements often are included. They provide safeguards for the buyers and sellers and contribute to more orderly and satisfactory relationship in purchase programs.

Three types of purchase specifications for meat and related products are developed for different purposes. Federal specifications are designed for Federal Government procurement. Department of Agriculture (USDA) specifications are designed for use in special purchase programs of the Department, such as surplus removal, school lunch, and similar purchases. Other specifications are designed for use by private agencies and State and local governments as a part of an Acceptance Service provided by the Department for assuring large-scale meat purchasers that products they buy comply with their specifications.

Approximately 50 percent of the beef, 16 percent of the veal and calf, and 36 percent of the lamb and mutton produced by commercial slaughterers were federally graded in 1958.

Meat grading is limited to plants operated under the Federal Meat Inspection Act or to the nonfederally inspected establishments that have facilities and an officially approved
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system of inspection. Periodic surveys are made of approved plants to insure that the minimum requirements are maintained always.

The grades that may be bought in retail stores are identified with one of six stamps: USDA Prime, USDA Choice, USDA Good, USDA Standard, USDA Commercial, and USDA Utility.

For veal, calf, yearling mutton, and mutton, the kind of meat is indicated in addition to the grade stamp. Only the grade stamp appears on beef and lamb. Products accepted as conforming with purchase specifications are identified by stamping each piece of meat or sealed package with a stamp with the words, "USDA Accepted as Specified AC."

THE POULTRY DIVISION of the Agricultural Marketing Service develops standards for quality of poultry, eggs, and egg products; a standard for facilities; and operating procedures for the processing of poultry and egg products.

The standards are used widely and are a basis for purchase specifications of Government agencies, including the Department of Defense.

Plant sanitation is a prerequisite of the Department's program for inspection and grade certification of processed poultry and eggs.

The sanitation standards are divided into three main parts to cover building and plant facilities, equipment and utensils, and maintenance of sanitary conditions and precautions against contamination of products. The sanitary provisions set forth are considered as the minimum necessary to produce clean and sanitary food products.

Poultry processed under the inspection service is eviscerated only at the time of inspection. Standards cover the method of presentation of the carcass and viscera and the condemnation of parts of carcasses. Each carcass is opened on the production line so as to present the internal organs and body cavity for examination. The inspector examines each carcass by viewing both the external and internal surfaces. Consumers can have confidence that poultry products bearing the inspection mark are clean and wholesome.

Factors considered in grading for quality of ready-to-cook poultry include: Conformation; fleshing; fat; freedom from pinfeathers; freedom from cuts, tears, and disjointed and broken bones; and freedom from discolorations of skin and flesh blemishes and bruises.

The factors that determine the quality of shell eggs are shape, texture, and condition of shell; shape and condition of yolk; and firmness and clarity of the white.

Quality of poultry is designated as A, B, and C. Quality of shell eggs is designated as AA, A, B, and C.

The Poultry Inspection Service examines poultry, poultry products, and rabbits to determine whether they are sound, healthful, clean, and fit for human food. Carcasses found to be satisfactory are passed and certified as wholesome and eligible to be labeled with the official inspection mark. Unwholesome carcasses are rejected and condemned.

Inspection procedures include six operations:

The supervision of the sanitation of the entire plant; sanitation of the various phases of the processing operation, such as defeathering, eviscerating, chilling, packaging, and labeling; and sanitation, maintenance, and use of equipment and utensils.

An ante mortem inspection of the birds at the plant when it is deemed necessary.

A post mortem inspection of each carcass at the time of evisceration. This procedure consists of a careful examination of both external and internal surfaces as well as the lungs, kidneys, air sacs, liver, spleen, and visceral organs.

The supervision of further processing of products, such as poultry pies, dinners ready to heat and serve, and canned products. Only poultry that
The disposal of condemned carcasses or parts thereof that are found at the time of inspection to be unsound, unwholesome, or otherwise unfit for human consumption. The condemned products are treated in a way that will prevent their use for food and prevent the spread of disease if animals eat them.

Poultry is inspected by a veterinarian or by another trained person who is supervised by a veterinarian.

The grading programs provide for the cooperation of various State departments of agriculture and the extension services of the State colleges. Grade identification or grade labels in cooperating States may use the phrase, "Federal-State Graded."

Resident graders classify eggs as consumer grades, procurement grades, and wholesale grades, or according to contract specifications. When eggs are classified as consumer grades to be packaged with official identification, each egg is candled for quality and sorted for weight by a licensed grader or by a candler who has a limited license and whose work is checked by a grader.

Officially graded eggs may be marketed in cases or cartons. When cartoned eggs are officially graded, the grade mark is printed on the carton or on a label used to seal the carton. The U.S. grade, weight or size, date of grading, and plant number are indicated within the grade mark, on the tape used to seal the carton, or on the carton. The name and address of the packer or distributor must also be shown.

Ready-to-cook poultry must have been officially inspected for condition and wholesomeness and must be properly identified as an inspected product to be eligible for grading, whether the grading is done in an official plant or elsewhere.

Resident or continuous grading is done by Federal or State graders, who are stationed in the applicant's processing plant and are available at all times for grading work at the plant.
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This Federal grade mark for poultry may be used with the statement “Federal-State Graded” in conjunction with Federal-State grading programs.

This grade mark used on egg cartons, or on tapes sealing egg cartons, shows that the eggs have been graded in accordance with Federal standards for quality and size.

Processing plants operating under the Department of Agriculture poultry grading services may use the official grade mark on individually labeled poultry products.

The grade mark tells the quality (U.S. Grade A, B, or C). The shield design used as the official grade mark contains the letters “USDA” and the U.S. grade of the product.

When plants manufacture and pack-age egg products under the continuous supervision of a Federal or State grader or inspector, the entire processing operation is checked for adequacy of facilities, sanitation of equipment and operating procedures, selection of the raw material used, and handling and condition of the finished egg product.

Plants operating on a voluntary basis as official plants under Government supervision may have their product identified with the official inspection mark.

The Dairy Division of the Agricultural Marketing Service offers voluntary inspection and grading services for many of the manufactured dairy products.

They include butter; Cheddar, Swiss, process, and cottage cheese; nonfat dry milk; dry whole milk; evaporated milk; sweetened condensed milk; sterilized whole milk; ghee; anhydrous milkfat; and miscellaneous dairy products.

These services are designed to provide a nationwide impartial and uniform system of quality evaluation of dairy products based on established and well-recognized U.S. standards for grades. Their widespread use encourages standardization and improvement of quality in dairy products and tends to promote more orderly marketing.

The grades generally are designated by letters or by names. For butter, however, both letters and numerical scores are used. Butter grade designations are U.S. Grade AA or U.S. 93 score; U.S. Grade A or U.S. 92 score; U.S. Grade B or U.S. 90 score; and U.S. Grade C or U.S. 89 score.

Four letter-grade classifications are used for Cheddar cheese (U.S. Grade AA, U.S. Grade A, U.S. Grade B, and U.S. Grade C) and for Swiss cheese (U.S. Grade A, U.S. Grade B, U.S. Grade C, and U.S. Grade D).

Name grades are used for all of the dry milk. Dry whole milk is classified
as U.S. Premium, U.S. Extra, and U.S. Standard Grade. Dry buttermilk has two grades—the same as nonfat dry milk. Dry whey has only one grade, U.S. Extra.

Grade standards for dairy products encompass the full range of marketable quality and reflect differences in essential commodity characteristics for the benefit of producers, processors, and consumers of the product. They reflect, as far as possible, differences in quality of the raw material and hygiene of manufacture. There is no overlapping of quality between grades of a given dairy product, but a certain range or latitude in quality is allowed within each grade. As the grade decreases, the latitude in quality within each grade widens progressively.

Quality and stability of product depend largely on sound raw material and good manufacturing practices. The quality of a finished product can be no better than the raw material from which it is made. The value of good raw material can be nullified through poor processing facilities, improper processing methods, lack of sanitation, and improper packaging and handling.

Three major types of service are available to the dairy industry: Grading of products on a lot basis; "resident" grading and quality control service in processing plants on a contract basis; and plant inspection.

Grading on a lot basis is conducted at assembling, receiving, and shipping points and at terminal markets. This service enables buyers and sellers at distant locations to conduct transactions with confidence, relying on U.S. grade certificates as the basis for trading.

"Resident" grading and quality control service is designed to provide "in processing" inspection, including checks on quality of raw material used, effectiveness of processing methods and procedures, quality control laboratory testing for compliance with minimum specifications of the Department of Agriculture, and grading of the finished products in accordance with U.S. standards.

"Plant inspection" service is performed as a check at dairy plants to assist the management in improving operations wherever necessary. It aids in locating any deficiencies in equipment and facilities, processing methods and procedures, and encourages management to make corrections when necessary to produce dairy products of a stable character and of a quality commensurate with the quality of raw material used. More than 1,100 dairy plant inspections were performed in 1957 by graders licensed by the Department of Agriculture.

Use of the service has grown from a total of about 73 million pounds of dairy products graded in 1927 to more than 3 billion pounds in 1958.

This widespread use of the grading services has stimulated interest in quality and encouraged dairy processors to grade the milk and cream properly and to improve continually their manufacturing methods and procedures. This has brought about increased incentive to the producer in improving quality of milk and cream and has resulted in better returns to those who produce better quality.

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To Assure Good, Clean Meat

A. R. MILLER

The meat inspection law makes it illegal to ship meat in interstate or foreign commerce unless the meat has been prepared and processed under the inspection provisions of the law and carries the mark of Federal inspection.

The meatpacker who wants to ship his products interstate or in export trade applies for the inspection, places his plant in compliance with requirements as to structural equipment and sanitation, receives a grant of inspection, and thereafter operates under the inspection supervision of the Federal program.

The law applies to the meat and edible products derived from cattle, sheep, swine, and goats. These include fresh and frozen carcasses and fresh and frozen cuts of them.

The inspection applies also to processed and manufactured meat and meat food products (like smoked ham and bacon) and cooked meats of all kinds (such as sausage and canned products) that are prepared from meat. Among the canned products are corned beef, cooked ham, corned-beef hash, chile con carne, and spaghetti with meatballs.

The inspection begins with the live animal and continues through the slaughtering operation. It applies to the meat during its many stages of processing and manufacture and to the many ingredients that are used and the processes that are employed in its processing and manufacturing.

The purpose of the meat inspection law, which is administered by the Agricultural Research Service, and the inspection program, which is organized under the authority contained in the law, is to assure that the consumer obtains that protection to which he is entitled.

History and experience demonstrate that to provide the protection there must be an official inspection system integrated in the production line of the packing plants.

The consumer expects safety in his meat supply. He expects that there will be a strict regard for cleanliness in the production and handling of the meat. There should be no impairment of the nutritive value of meat or a
meat product. Its composition and labeling must be honest.

When a meatpacker applies for Federal meat inspection, he sends in with his application a plan that usually is a blueprint of his plant. The plan describes his premises, the structural features of the plant, the various operating departments, the kind and location of equipment in the slaughtering and processing departments, and the water, sewage, and lighting systems.

The plan is reviewed and compared with the standards that are essential to the effective functioning of the inspection program.

Should the applicant's plan fail to meet the standards in any respect, he is told how he can correct the shortcoming. When the applicant sends in the corrected set of plans, they are again reviewed. If they are found to be in compliance, they are marked with the stamp of approval.

The applicant then proceeds to place his plant and premises in conformance with the approved plan.

When that is done, he notifies the Meat Inspection Office, and a survey is made of the plant and its premises. They are compared with the specifications contained in the approved plan. When the plant and its premises are found to conform with the approved plan, a grant of inspection is issued to the packer and the inspection program is inaugurated in his plant.

As the animals intended for slaughter are assembled in the pens at the meatpacking plant, the inspector circulates among them to detect and eliminate any that are unfit for slaughter. An employee of the packer accompanies the inspector.

The animals that he designates as unfit for slaughter are pointed out to the plant employee, who moves them to a special pen, where they are kept until they can be given a more thorough examination. Following his examination, the veterinarian decides which are to be condemned and removed directly to the fertilizer department.

Others are classed as suspected of being affected with a condition that might require the condemnation of the carcass on post mortem examination. These suspects, so called, are handled separately from the regular kill when they are given a thorough post mortem examination. In disposing of the carcasses, the veterinarian considers both the symptoms demonstrated by the live animal and the post mortem findings.

Each carcass passed for regular kill receives a thorough post mortem examination. The inspectors take their positions right in the processing lines in the slaughtering department, where they are provided with space and facilities to perform their work.

The sanitation controls in the slaughtering departments are strict. Inedible parts of the animal are separated from the edible parts in a way that will assure against contamination. For example, the hide, the contents of the sinuses, gastrointestinal tract, and the urogenital organs may contaminate other parts unless care is exercised.

Slaughtering performed with facilities that meet the inspection standards and under the inspection control is a smooth, clean operation.

The inspector has the power to destroy a condemned product or correct an unsanitary condition. When he sees an unfit carcass or part of carcass, he removes it immediately from the production line. It is stamped many times with the word “condemned” and is removed promptly in a watertight container to the fertilizer department, which is completely separate from the slaughtering department. The condemned material is under the inspector's constant control until it has been converted into a nonfood article.

Should an unsanitary condition develop along the production line, the inspector presses a button and stops the line until the condition is corrected. Usually, however, it is an unclean article that requires additional attention and can be handled without stopping the production. The inspector affixes a "retained" notice to such
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an article. It may not be removed from the inspector's supervision until the condition requiring the retention has been corrected and he has removed the notice.

The inspector stops the use of un­
clean equipment, to which he affixes a "rejected" notice. Such equipment may be used again for handling edible products only after it has been placed in a clean condition and the "re­
jected" notice is removed by the in­
spector.

The inspection control does not end
with the production of clean, disease-
free meat in the slaughtering depart­
ment. The product-control inspectors then take over. They see that the clean meat stays wholesome and that it is handled under sanitary conditions. Their control extends to the formula­
tion, manufacture, and labeling of the many products that contain meat.

Many ingredients or additives are combined with meat. They include flavorings, spices, water, curing ma­
terials, and other foods, such as flour, beans, pickles, spaghetti, and dairy products. The inspector sees that these are clean and fit materials to be used in a food product. Rejections of ma­
terials are made by the inspector for reasons ranging from insect infestation to filth and chemical contamination.

Many things can happen in the man­
ufacturing process that might contam­
inate or affect adversely the whole­
someness of the product. Processing temperatures are frequently critical.

The prevention of adulteration re­
quires constant vigilance. As investiga­tions are conducted by food tech­
nologists in their efforts to improve foods, improve methods of food proc­
essing, and effect economies in the processing of foods, a great many food additives are developed.

Examples are agents that serve to prevent foaming, accelerate color fixa­
tion, develop flavor, retard flavor re­
version, inhibit rancidity, prevent co­
agulation, enhance color, improve emulsification, improve tenderness, re­
duce the amount of cooked-out juices, and clarify the product.

All of them serve useful purposes and help the processor to provide the con­
sumer with improved products. But this is true only if the product can be eaten safely, there is no concealment of inferiority, and the nutritive value of the food is not lowered.

When an inspected meatpacker wants to use a newly developed additive or wants to make a new use of a previously approved additive, he asks approval for such use. His request, addressed to the Meat Inspection Office, contains full information con­
cerning the additive.

In handling the request, the first consideration is safety. The packer is required to show that the proposed additive is nontoxic and when used as proposed will not create an unsafe condition in the food of which it is an intended ingredient.

New chemical additives usually re­
quire considerable investigation and carefully planned feeding tests with animals to demonstrate their safety. Anyone who wants to introduce a new chemical additive has to prove it is safe, using methods that are ac­
ceptable to the inspection program.

There are also indirect additives. For example, packaging materials must be safe to be in contact with the meat without transferring toxic materials to it. Also, foods must be kept safe from pesticide residues and those that might result from treating animals with estrogenic compounds, antibiotics, and similar agents.

The use of plastic materials as pack­
aging materials for food products has prompted the development of non­
toxic synthetic resins, plasticizers, stabilizers, lubricants, and pigments. Plastic packaging materials and others intended for use at an inspected meat­
packing plant are reviewed to make sure they contain nothing toxic.

Labels on meat products must not be misleading concerning the compo­sition of the product. Statements of ingredients must identify the actual
ingredients, which must not be worded in a way that will mislead the purchaser concerning the relative amounts of the various ingredients used. Illustrations on labels must not be misleading as to the composition or character of the product they pertain to.

Terms denoting quality must truthfully represent the product to which they refer. The statement of the quantity of contents must actually represent the product and it must be stated in familiar terms. Labels must not misrepresent nutritive value.

Definitions and standards of identity are developed for the various meats and meat products to assure that the inspected meat or product will conform with the purchaser's expectancy for the article labeled with a particular name of product.

These definitions and standards place maximum limits on the use of such additives as moisture, flour, and many other inexpensive ingredients. They also identify minimum meat levels to assure that the product contains at least the full amount of meat that the purchaser is entitled to expect under a particular name.

Sausage is an example of the kind of food that lends itself to adulteration through substitutions of other ingredients for meat. Limited amounts of moisture, certain cereals, and nonfat dry milk contribute flavor and texture to certain classes of cooked sausage; excessive amounts of them violate the standard, and the result is an adulterated product.

When the inspection program undertakes to promulgate a standard of identity for a particular meat food, it must first ascertain just what the purchaser expects to receive when he buys such food.

This so-called consumer expectancy is sort of a factual composite of information gleaned from cookbooks, chefs, questionnaires, and current and historical merchandising practices. In frankfurters and bologna, for example, the added moisture must not exceed 10 percent, and the use of fillers is limited to 3.5 percent. When a filler is used, its presence is declared in the name of product, as, for example, "Frankfurters, cereal added." The statement of ingredients on the label for such a product includes, of course, a declaration of all ingredients.

Corned-beef hash must contain at least 35 percent of cooked beef. Meat stews are required to contain not less than 25 percent of meat; chile con carne, not less than 40 percent of meat; chile con carne with beans, not less than 25 percent of meat—all computed on the weight of the fresh meat.

Similar requirements apply to such meat foods as spaghetti with meatballs and sauce, scrapple, hamburger, ham spread, tongue spread, pork sausage, and pork with barbecue sauce, to mention a few.

The meatpacker whose plant is inspected cooperates in the producing of meat foods that conform with the prescribed standard.

He realizes that meat inspection standards that protect the consumer also protect his market. He knows that an expanding livestock and meat industry will prosper in this country only when the purchaser will buy the products of this industry with confidence knowing that they are clean, wholesome, free from adulteration, and truthfully labeled.

Each meatpacker insists, however, that the controls that are necessary to accomplish this be applied also to his competitors. Competition and economic pressure being what they are, these objectives cannot be attained without the servicing of industry by an official meat inspection system. The Federal meat inspection program is organized to accomplish this effectively in the 1,300 plants in the States.

A. R. Miller became Director of the Meat Inspection Division, Agricultural Research Service in 1944. He is a graduate (in veterinary medicine) of Iowa State College and of the Georgetown University Law School.
TO: Inspectors in Charge of Meat Inspection  
FROM: R. H. Philbeck, Chief Staff Officer for Chemical Control  
SUBJECT: Substances Accepted for Use in Conjunction with Processing of Products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid</td>
<td>Reg. 18.7(1)</td>
<td>Refining</td>
<td>Rendered fats</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Acetylated Monoglycerides</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>(distilled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algin</td>
<td>Correspondence</td>
<td>Extender</td>
<td>Breader Mix;</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>stabilizer</td>
<td>sauces</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amines, filming</td>
<td>Correspondence</td>
<td>Volatile</td>
<td>Steam</td>
<td>See chemical names</td>
</tr>
<tr>
<td></td>
<td></td>
<td>boiler additive to retard corrosion in pipes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antioxidants (Oxygen inter­ceptrors)</td>
<td>Reg. 16.13(e); 18.7(d); 17.9(d)</td>
<td>To retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.01% singly; 0.02% combinations</td>
</tr>
<tr>
<td>Ascorbic acid</td>
<td>Reg. 18.7(s); 28.3(b)(7)</td>
<td>Accelerate color fixing in curing</td>
<td>Cured cuts; cured comminuted product</td>
<td>75 ozs. to 100 gals. pickle; 3/4 oz. to 100 lbs. meat, 10% solution surfaces cured cuts prior to packaging</td>
</tr>
<tr>
<td>Aspergillus Oryzae</td>
<td>Correspondence</td>
<td>Soften tissue</td>
<td>Manual 18.22</td>
<td>Same as for papain</td>
</tr>
</tbody>
</table>

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
MEAT INSPECTION DIVISION  
WASHINGTON 25, D. C.  
ZYLY-MID-61-11
<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspergillus flavus-oryzae group</td>
<td>Correspondence</td>
<td>Same as papain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autolyzed yeast extract</td>
<td>Correspondence</td>
<td>Flavor</td>
<td>Various</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Bacterial starter; lactic acid starter culture</td>
<td>Reg. 18.7(p) Nemo. 23a</td>
<td>To develop flavor</td>
<td>Dry sausage; pork roll</td>
<td>0.5%</td>
</tr>
<tr>
<td>Benzoate, sodium; benzoic acid</td>
<td>Reg. 28.1(a) (3)(11), (b) (1)(v)</td>
<td>To retard flavor restoration</td>
<td>Oleomargarine</td>
<td>0.1%</td>
</tr>
<tr>
<td>BHA (butylated hydroxyanisole)</td>
<td>Reg. 18.7(t) 16.13(e)</td>
<td>Antioxidant; to retard rancidity development</td>
<td>Unsmoked dry sausage</td>
<td>0.003%</td>
</tr>
<tr>
<td></td>
<td>Reg. 17.9(d); 18.7(d)(5)</td>
<td>Antioxidant; to retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.01%</td>
</tr>
<tr>
<td>BHT (butylated hydroxytoluene)</td>
<td>Reg.18.7(d) 17.9(d)</td>
<td>Antioxidant to retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.01%</td>
</tr>
<tr>
<td>Bicarbonate of soda</td>
<td>Reg. 18.7(1) correspondence</td>
<td>To neutralize excess acidity; cleaning vegts.</td>
<td>Rendered fats; tomato soup; beans; etc.</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Borax</td>
<td>Reg. 17.9; 18.8</td>
<td>Preservative</td>
<td>Export</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Bromelin</td>
<td>Correspondence Manual 18.22</td>
<td>Same use as papain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 3 - Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon (purified charcoal)</td>
<td>Reg. 18.7(1)</td>
<td>Refining</td>
<td>Rendered fat</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Carbon dioxide gas</td>
<td>Correspondence</td>
<td>Immobilizing</td>
<td>Hogs</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Carrageenan</td>
<td>Correspondence</td>
<td>Extender; stabilizer</td>
<td>Bread mix; sauces</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Carrageenan</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Imitation</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Coseinate, sodium</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Imitation</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Caustic soda (sodium hydroxide)</td>
<td>Reg. 18.7(1)</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Cellulose gum (carboxymethyl cellulose)</td>
<td>Correspondence</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Citric acid</td>
<td>Reg. 18.7(d)</td>
<td>Synergist; to increase</td>
<td>Unsmoked dry sausage</td>
<td>0.01%</td>
</tr>
<tr>
<td></td>
<td>(9)</td>
<td>effectiveness of anti-oxidants</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reg. 18.6(t)</td>
<td>Synergist; to increase</td>
<td>Oleomargarine</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>effectiveness of anti-oxidants</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reg. 28.1(a)</td>
<td>To protect flavor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3)(viii), (b)(l)(viii)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correspondence</td>
<td>Flavoring</td>
<td>Chili con carne</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Substance</td>
<td>Reference</td>
<td>Purpose</td>
<td>Products</td>
<td>Amount</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Citric acid and sodium citrate</td>
<td>Reg. 18.7(o)</td>
<td>Prevent coagulation</td>
<td>Beef blood</td>
<td>0.2%</td>
</tr>
<tr>
<td>Coloring material. (Vegetable, and synthetic)</td>
<td>Reg. 28.1(a) (3)(1), (b) (1)(iv); 18.7 (m); (CFR amendment 59-74; 18.7(a)(2))</td>
<td>To color casings; rendered fat; marking ink; etc.</td>
<td>Sausage casings; oleomargarine; shortening ink</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Corn syrup</td>
<td>Reg. 18.7(b)(q); Memo. 243</td>
<td>Flavor; cure</td>
<td>Cured products</td>
<td>2.5%</td>
</tr>
<tr>
<td>Corn syrup dried</td>
<td>Reg. 18.7(b)(q); Memo. 243</td>
<td>Flavor; cure</td>
<td>Cured products</td>
<td>2.0%</td>
</tr>
<tr>
<td>Cyclamate, sodium</td>
<td>Memo. 277</td>
<td>Sweetener</td>
<td>Bacon; ham</td>
<td>0.15%</td>
</tr>
<tr>
<td>Cyclohexylamine</td>
<td>Correspondence</td>
<td>To retard corrosion</td>
<td>Boiler water</td>
<td>10 ppm from approved feeder</td>
</tr>
<tr>
<td>Dextrose</td>
<td>Reg. 18.7(b); 28.2(a)(b); Memo. 215</td>
<td>Flavor; cure; seasoning</td>
<td>Sausage; ham; etc.</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Diacetyl</td>
<td>Reg. 28.1(a)(3)(iv), (b)(1)(vii)</td>
<td>Flavor</td>
<td>Oleomargarine</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Diacetyl tartaric acid esters of mono- and diglycerides</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Diatomaceous earth</td>
<td>Reg. 18.7(1)</td>
<td>Refining</td>
<td>Rendered fats</td>
<td>Sufficient for purpose</td>
</tr>
</tbody>
</table>
### APPENDIX

#### 5 - Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry ice (carbon dioxide-solid)</td>
<td>Memo 239</td>
<td>cooling</td>
<td>Chopping of meat; packaging of product</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td></td>
<td>Correspondence</td>
<td>Cooling</td>
<td>Fats</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Enzymes, proteolytic</td>
<td>See papain, bromelin, ficin, aspergillus oryzae, aspergillus flavus-oryzae group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ficin</td>
<td>Correspondence</td>
<td>Same use as papain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fullers' earth</td>
<td>Reg. 18.7(1)</td>
<td>Refining</td>
<td>Rendered fat</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Glycerol (glycerine)</td>
<td>Reg. 18.6(a)</td>
<td>Inhibit drying; manufacture of mono &amp; diglycerides</td>
<td>Seasonings; curing mixes</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td></td>
<td>(5) correspondence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glyceryl lacto-fatty acid ester</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Glycine</td>
<td>Memo. 258</td>
<td>To retard rancidity development</td>
<td>Animal fats; shortening</td>
<td>.01%</td>
</tr>
<tr>
<td>Glycerol lactopalmitate, etc.</td>
<td>Correspondence</td>
<td>A type of mono- &amp; diglycerides</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Gums, vegetable (tragacanth, karaya, etc.)</td>
<td>Correspondence</td>
<td>Emulsifying agent; binder</td>
<td>Spice emulsion</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>egg roll; breading mix</td>
<td></td>
</tr>
</tbody>
</table>
6 - Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>Reg. 18.7(j); Memo 279</td>
<td>Bleach</td>
<td>Tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Hydrolyzed plant protein</td>
<td>Reg. 28.2(d) Manual 18.56, 18.25 (b) &amp; (c)</td>
<td>Flavor</td>
<td>Various</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Isoascorbic acid</td>
<td>Reg. 18.7(s); 28.3(b)(7) Memo 217 Supplement 1, 2, and 3</td>
<td>Accelerate color fixing in curing</td>
<td>cured cuts; cured commingled in curing product</td>
<td>71 ozs. to 100 gals. pickle; 3/4 oz. to 100 lbs. meat; 10% solution cut surfaces</td>
</tr>
<tr>
<td>Isopropyl citrates</td>
<td>Reg. 28.1(a); (3)(ix), (b) (1)(ix)</td>
<td>To protect flavor</td>
<td>Oleomargarine</td>
<td>0.02%</td>
</tr>
<tr>
<td>Lecithin</td>
<td>Reg. 18.7(d); 4; correspondence</td>
<td>To retard rancidity development; emulsifier</td>
<td>Lard and shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Lignin</td>
<td>Correspondence</td>
<td>Loosen scale</td>
<td>Steam boilers</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Lime</td>
<td>Reg. 18.7(j); Memo 279</td>
<td>Denuder</td>
<td>Tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Malt syrup</td>
<td>Correspondence</td>
<td>Flavor; cure</td>
<td>Cured product</td>
<td>2.5%</td>
</tr>
<tr>
<td>Methyl polysilicone</td>
<td>Correspondence</td>
<td>To retard foaming</td>
<td>Soup</td>
<td>10ppm</td>
</tr>
<tr>
<td>Milk Protein Hydrolysate</td>
<td>Correspondence</td>
<td>Flavor</td>
<td>Various</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Mono - and diglycerides</td>
<td>Reg. 17.8(c); (4)) 18.7(c); 28.1(a)(9)</td>
<td>Emulsifiers</td>
<td>Lard, shortening; oleomargarine</td>
<td>Sufficient for purpose in lard &amp; shortening; 0.5% in oleomargarine</td>
</tr>
</tbody>
</table>
### 7 - Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monoisopropyl citrate</td>
<td>Reg. 18.7(d) (9), 28.1(a) (3)(ix), (b)</td>
<td>To increase effectiveness of antioxidants</td>
<td>Lard, shortening; oleomargarine</td>
<td>0.01% in lard &amp; shortening; 0.02% in oleomargarine</td>
</tr>
<tr>
<td>Monoammonium glutamate</td>
<td>Reg. 28.2(b) (6); Manual 18.5%</td>
<td>Flavor</td>
<td>Various</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Morpholine</td>
<td>Correspondence</td>
<td>To retard corrosion</td>
<td>Boiler water</td>
<td>10 ppm from approved feeder</td>
</tr>
<tr>
<td>Nickel</td>
<td>Reg. 18.7(1)</td>
<td>Catalyst</td>
<td>Hydrogenated fats</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Nitrate of soda or potassium</td>
<td>Reg. 18.7(k)</td>
<td>Source of nitrite</td>
<td>Cured products</td>
<td>See sodium or potassium nitrate</td>
</tr>
<tr>
<td>Nitrite of soda or potassium</td>
<td>Reg. 18.7(k)</td>
<td>Fix color</td>
<td>Cured products</td>
<td>See sodium or potassium nitrite</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>Correspondence Memo. 280</td>
<td>Exclude oxygen; propellant for enzyme solutions</td>
<td>Sealed products; beef cuts</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Nordihydroguaiaretic acid (NDGA)</td>
<td>Reg. 18.7(d) (2)</td>
<td>Antioxidant; to retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.01%</td>
</tr>
<tr>
<td>Octadecylamine</td>
<td>Correspondence</td>
<td>Boiler additive to retard corrosion in steam pipes</td>
<td>Steam</td>
<td>2.5 ppm in condensed steam (analysis required)</td>
</tr>
<tr>
<td>Oxygen interceptor</td>
<td>Reg. 16.13 (e) 17.9(d) 18.7(d)</td>
<td>See antioxidants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance</td>
<td>Reference</td>
<td>Purpose</td>
<td>Products</td>
<td>Amount</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------</td>
<td>---------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>Papain</td>
<td>Reg. 17.8(c) (56); Manual 28.22</td>
<td>Soften tissue</td>
<td>Frozen cuts</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Phosphates: disodium; monosodium; sodium hexameta; sodium tripoly-; sodium pyro-; sodium acid pyro- phosphate</td>
<td>Reg. 28.7(c); 28.3 (b)(6)</td>
<td>Decrease amount of cooked-out juices</td>
<td>Ham, pork shoulder picnic; canned chopped ham</td>
<td>5.0% in pumping pickle; 0.5% in product</td>
</tr>
<tr>
<td>Phosphate, sodium hexameta-</td>
<td>Correspondence</td>
<td>Retard scale formation in pipes</td>
<td>Potable water supply</td>
<td>10 ppm from approved feeder</td>
</tr>
<tr>
<td>Phosphate, trisodium</td>
<td>Reg. 18.7(1)</td>
<td>Denuder</td>
<td>Tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>Reg. 18.7(d)(9)</td>
<td>Synergist: To increase effectiveness of antioxidants</td>
<td>Lard and shortening</td>
<td>0.01%</td>
</tr>
<tr>
<td>Polyoxymethylene (20) sorbitan monostearate</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Propyl gallate</td>
<td>Reg. 18.7(d)(7)</td>
<td>Antioxidant; To retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.01%</td>
</tr>
<tr>
<td>Propylene glycol monostearate</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Resin Quaiac</td>
<td>Reg. 18.7(d)(1)</td>
<td>Antioxidant; To retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.1%</td>
</tr>
</tbody>
</table>
## 9 - Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saccharin</td>
<td>Correspondence Memo. 277</td>
<td>Sweetner</td>
<td>Bacon</td>
<td>.01%</td>
</tr>
<tr>
<td>Sodium amide</td>
<td>Correspondence</td>
<td>Rearrangement</td>
<td>Lard</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium ascorbate/sodium</td>
<td>Reg. 18.7 (s); 28.3(b)(7);</td>
<td>Accelerate</td>
<td>Cured cuts;</td>
<td>87.5 ozs. to 100 gals. pickle;</td>
</tr>
<tr>
<td>isascorbate (sodium erythobate)</td>
<td>Memo. 227; Supplement 1, 2 and 3</td>
<td>color fixing</td>
<td>cured comminuted product</td>
<td>7/8 oz. to 100 lbs. meat; 10% solution to surface of cured product prior to packaging</td>
</tr>
<tr>
<td>Sodium bicarbonate</td>
<td>See bicarbonate of soda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium carbonate</td>
<td>Reg. 18.7(i); 18.7(j)</td>
<td>Refining; Menading</td>
<td>Fats; tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium caseinate</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Imitation sausage; nonspecific loaves; soups; stews; etc.</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium hydroxide (caustic soda)</td>
<td>Reg. 18.7(j)</td>
<td>Demuder</td>
<td>Tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium lauryl sulfate</td>
<td>Correspondence</td>
<td>Scald aid; Demuder</td>
<td>Dehairing hogs; tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium metasilicate</td>
<td>Reg. 18.7(j); Memo. 279</td>
<td>Demuder</td>
<td>Tripe</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium methoxide</td>
<td>Correspondence</td>
<td>Rearrangement</td>
<td>Lard</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Substance</td>
<td>Reference</td>
<td>Purpose</td>
<td>Products</td>
<td>Amount</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------</td>
<td>---------------------</td>
<td>---------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Sodium or potassium nitrate</td>
<td>Reg. 18.7(k)</td>
<td>Source of nitrite</td>
<td>Cured products</td>
<td>7 lbs. to 100 gals. pickle; 3 ozs. to 100 lbs. meat (dry cure); 3 3/4 ozs. to 100 lbs. chopped meat</td>
</tr>
<tr>
<td>Sodium or potassium nitrite</td>
<td>Reg. 18.7(k)</td>
<td>Color fixing</td>
<td>Cured products</td>
<td>200 ppm (.02% in product; 2 lbs. to 100 gals. pickle; 1 oz. to 100 lbs. meat (dry cure); 6 oz. to 100 lbs. chopped meat</td>
</tr>
<tr>
<td>Sodium soya protein</td>
<td>Correspondence</td>
<td>Binder and extender</td>
<td>Imitation sausage; nonspecific loaves; soups stews; etc.</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Sodium succinate derivatives of mono-and di-glycerides</td>
<td>Reg. 28.1(a) (3)(v)</td>
<td>Emulsifier</td>
<td>Oleomargarine</td>
<td>0.5%</td>
</tr>
<tr>
<td>Sorbitan monostearate</td>
<td>Correspondence</td>
<td>Emulsifier</td>
<td>Shortening</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Starter distillate</td>
<td>Reg. 28.1(a) (3)(iv), (b) (1)(vii)</td>
<td>Flavor</td>
<td>Oleomargarine</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Stearyl citrate</td>
<td>Reg. 28.1(a) (3)(x), (b) (1)(x)</td>
<td>To protect flavor</td>
<td>Oleomargarine</td>
<td>0.15%</td>
</tr>
<tr>
<td>Sugars, approved (sucrose and dextrose)</td>
<td>Reg. 18.7(b); 28.2(a)(4); Memo. 215</td>
<td>Flavoring; curing; seasoning</td>
<td>Sausage; ham; miscellaneous purpose</td>
<td>Sufficient for purpose</td>
</tr>
</tbody>
</table>
### Inspectors in Charge of Meat Inspection

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>Purpose</th>
<th>Products</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphites with strong alkali</td>
<td>Correspondence</td>
<td>Retard corrosion</td>
<td>Boiler water</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Tannic acid</td>
<td>Reg. 18.7(1)</td>
<td>Refining; loosen scale</td>
<td>Rendered fats; boiler water</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Tocopherols</td>
<td>Reg. 18.7(d)(3)</td>
<td>Antioxidant: To retard rancidity development</td>
<td>Lard and shortening</td>
<td>0.03%</td>
</tr>
<tr>
<td>Tricalcium phosphate</td>
<td>Correspondence</td>
<td>Rendering</td>
<td>Animal fats</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Trisodium phosphate</td>
<td>Reg. 18.7(1)</td>
<td>Demuder rendering</td>
<td>Tripe; animal fats</td>
<td>Sufficient for purpose</td>
</tr>
<tr>
<td>Whey (dried)</td>
<td>Manual 18.14</td>
<td>Binder and extender</td>
<td>Imitation sausage; nonspecific leaves; soups; stews; etc.</td>
<td>Sufficient for purpose</td>
</tr>
</tbody>
</table>

This supersedes Part 18.69, Permitted Chemical Additives, of the Manual of Meat Inspection Procedures of the United States Department of Agriculture as revised June 1, 1959.
§ 28.2 Corned beef hash: identity; label statement of optional ingredients. (a) Corned beef hash is the semi-solid meat food product in the form of a compact mass which is prepared with beef, potatoes, curing agents, seasoning, and any of the optional ingredients listed under paragraph (b) of this section, in accordance with the provisions of subparagraphs (1), (2), (3), and (4) of this paragraph and the provisions of paragraph (c) of this section.

(1) Either fresh beef, cured beef, or canned corned beef, or a mixture of two or more of these ingredients, may be used, and the finished product shall contain not less than 35 percent of beef computed on the weight of the cooked and trimmed beef. The weight of the cooked meat used in this calculation shall not exceed 70 percent of the weight of the uncooked fresh meat.

(2) Potatoes refers to fresh potatoes, dehydrated potatoes, cooked dehydrated potatoes, or a mixture of two or more of these ingredients.

(3) Curing agents refers to either salt, sodium nitrate, potassium nitrate, or potassium nitrite, or a combination of two or more of these ingredients. When sodium nitrate, sodium nitrite, potassium nitrate, or potassium nitrite is used it shall be used in amounts not exceeding those specified in § 18.7 (k) of this subchapter.

(4) Seasoning refers to salt, sugar (sucrose or dextrose), spice, and/or flavoring, including essential oils, oleoresins, and other spice extractives.

(b) Corned beef hash may contain one or more of the following optional ingredients:

(1) Beef cheek meat and beef head meat from which the overlying glandular and connective tissues have been removed, and beef heart meat, exclusive of the heart cap, may be used individually or collectively to the extent of 5 percent of the meat ingredient.

(2) Onions, including fresh onions, dehydrated onions, or onion powder.

(3) Garlic, including fresh garlic, dehydrated garlic, or garlic powder.

(4) Water.

(5) Beef broth or beef stock.

(6) Monosodium glutamate.

(7) Hydrolyzed plant protein.

(8) Beef fat.

(c) The finished product shall not contain more than 15 percent fat nor more than 72 percent moisture.

(d) (1) The label shall bear the name “corned beef hash”.

(2) When any ingredient specified in paragraph (b) (1) of this section is used, the label shall bear the following applicable statement: Beef cheek meat constitutes 5 percent of the meat ingredient, or beef head meat constitutes 5 percent of the meat ingredient, or beef heart meat constitutes 5 percent of the meat ingredient. When two or more of the ingredients are used the words “constitutes 5 percent of meat ingredient” need only appear once.

(3) Whenever the words “corned beef hash” are featured on the label so conspicuously as to identify the contents, the statements prescribed in subparagraph (2) of this paragraph shall immediately and conspicuously precede or follow such name without intervening written, printed, or other graphic matter.
U. S. DEPARTMENT OF AGRICULTURE 7 CFR

UNITED STATES STANDARDS FOR GRADES OF

FROZEN PEAS

Effective May 28, 1959

PRODUCT DESCRIPTION AND GRADES

Sec.
52.3511 Produce description.
52.3512 Grades of frozen peas.

FACTORS OF QUALITY

52.3513 Ascertaining the grade.
52.3514 Ascertaining the rating for the factors which are scored.
52.3515 Color.
52.3516 Defects.
52.3517 Tenderness and maturity.

METHODS OF ANALYSES

52.3518 Brine flotation test.

LOT INSPECTION AND CERTIFICATION

52.3519 Ascertaining the grade of a lot.

SCORE SHEET

Sec.
52.3520 Score sheet for frozen peas.

PRODUCT DESCRIPTION AND GRADES

§ 52.3511 Product description.

"Frozen peas" means the frozen product prepared from the clean, sound, succulent seed of the common garden pea (Pisum sativum) by shelling, washing, blanching, sorting, proper draining, and is frozen in accordance with good commercial practice and maintained at temperatures necessary for the preservation of the product.

§ 52.3512 Grades of frozen peas.

(a) "U.S. Grade A" (or "U.S. Fancy") is the quality of frozen peas that possess similar varietal characteristics; that possess a good flavor; that possess a good color; that are practically free from defects; that are tender; and for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 90 points: Provided, That the frozen peas may possess a reasonably good color, scoring not less than 17 points and may be only reasonably free from defects with respect to pieces of peas if the total score is not less than 90 points.

(b) "U.S. Grade B" (or "U.S. Extra Standard") is the quality of frozen peas that possess similar varietal characteristics; that possess a fairly good flavor; that possess a reasonably good color; that are reasonably free from defects; that are reasonably tender; and for those factors which are rated in accordance with the scoring system outlined in this subpart the total score is not less than 80 points: Provided, That the frozen peas may possess a fairly good color and may be fairly free from defects with respect to pieces of peas if the total score is not less than 80 points.

(c) "U.S. Grade C" (or "U.S. Standard") is the quality of frozen peas that possess similar varietal characteristics; that possess a fairly good flavor; that possess a fairly good color; that are fairly free from defects; that are fairly tender; and that for those factors which are scored in accordance with the scoring system outlined in this subpart the total score is not less than 70 points: Provided, That the frozen peas may fail to meet the requirements of this paragraph for defects with respect to pieces of peas if the total score is not less than 70 points.

(d) "Substandard" is the quality of frozen peas that fail to meet the requirements of U.S. Grade C.

FACTORS OF QUALITY

§ 52.3513 Ascertaining the grade.

(a) General. In addition to considering other requirements outlined in the standards the following quality factors are evaluated in ascertaining the grade of the product:

1 Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or with applicable state laws and regulations.
(1) **Factors not rated by score points**.

(i) **Varietal characteristics**.

(ii) **Flavor**.

(2) **Factors rated by score points**. The relative importance of each factor which is rated is expressed numerically on the scale of 100. The maximum number of points that may be given for each such factor is:

<table>
<thead>
<tr>
<th>Factors</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>20</td>
</tr>
<tr>
<td>Defects</td>
<td>40</td>
</tr>
<tr>
<td>Tenderness and maturity</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

(b) **Evaluation of quality**. Flavor and the factor of tenderness and maturity is determined after the product has reached room temperature and after cooking. The rating for the factors of color and defects and the evaluation of similar varietal characteristics are determined immediately after the product has reached room temperature or may be determined immediately after thawing so that the product is free from ice crystals.

(c) **Definitions of requirements not rated by score points**.

(1) "Good flavor" means that the product has a good characteristic flavor and odor for the maturity and is free from objectionable flavors and objectionable odors of any kind.

(2) "Fairly good flavor" means that the product may be lacking in good flavor but is free from objectionable flavors and objectionable odors of any kind.

§ 52.3514 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor which is scored is inclusive. (For example, "36 to 40 points" means 36, 37, 38, 39, or 40 points.)

§ 52.3515 Color.

(a) (A) **Classification**. Frozen peas that possess a good color may be given a score of 18 to 20 points. "Good color" means that the frozen peas possess a bright, practically uniform, good, green color that is typical for the variety; that peas which vary markedly from such typical green color do not more than slightly affect the overall color appearance; and that not more than one-half of 1 percent, by count, of the peas may be blond, cream colored, or seriously detract from the overall color appearance.

(b) (B) **classification**. If the frozen peas possess a reasonably good color, a score of 16 or 17 points may be given. Frozen peas that score 16 points in this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule). "Reasonably good color" means that the frozen peas possess a reasonably bright and reasonably uniform green color typical for the variety; that peas which vary markedly from such typical green color do not materially affect the overall color appearance; and that not more than 1½ percent, by count, of the peas may be blond, cream colored, or seriously detract from the overall color appearance.

(c) (C) **Classification**. Frozen peas that possess a fairly good color may be given a score of 14 or 15 points. Frozen peas that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule). "Fairly good color" means that the frozen peas possess a fairly uniform green color typical for the variety, which may be dull but not off color; that peas which vary markedly from such typical green color do not seriously affect the overall color appearance; and that not more than 2 percent, by count, of all the peas may be blond, cream colored, or seriously detract from the overall color appearance.

(d) (SStd.) **classification**. Frozen peas that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 13 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.3516 Defects.

(a) **General**. The factor of defects refers to the degree of freedom from harmless extraneous vegetable material, pieces of peas, blemished peas, seriously blemished peas, and other defects which
affect the appearance or eating quality of the product.

(b) Definition of defects. (1) “Harmless extraneous vegetable material” means:

(i) Group 1; flat material. Succulent vegetable material common to the pea plant, such as leaves and pea pods;

(ii) Group 2; spherical material. Non-deleterious or non-poisonous types of nightshade berries, thistle buds, or other similar spherical vegetable material from other plants similar in color to frozen peas;

(iii) Group 3; cylindrical material. Cylindrical vegetable material, such as stems, common to the pea plant or from other plants which are similar in color to frozen peas.

(2) “Pieces of pea” (broken pea) means:

(i) A whole pea from which a cotyledon or a large portion thereof has become separated;

(ii) Two detached whole cotyledons;

(iii) Pieces of cotyledon aggregating the equivalent of an average size cotyledon;

(iv) A whole detached skin or portions of detached skin aggregating the equivalent of an average size whole skin.

(3) “Blemished pea” means a pea that is blemished by discoloration or by other means that does not materially affect the appearance or eating quality of the pea.

(4) “Seriously blemished pea” means a pea that is hard, shriveled, spotted, discolored, or otherwise blemished to an extent that the appearance or eating quality is seriously affected. Peas commonly referred to as “blond” or “cream colored” peas are not considered seriously blemished peas.

(c) Determination of allowances—

(1) Determining percent, by count, of pieces of peas. (i) The percent, by count, of pieces of peas is determined by dividing the total number of pieces of peas by the total number of peas and pieces of peas.

(ii) A pea held together by its skin, even though the cotyledons are partly crushed or the skin split, is not considered as a broken pea or piece of pea.

(2) Harmless extraneous vegetable material. (i) The allowances for harmless extraneous vegetable material are based on 30 ounces of frozen peas. When considering sample units of less than 30 ounces, the allowances provided in this section for the respective grade classification will be permitted in a single sample unit: Provided, That the average of such defects in the entire sample does not exceed such allowance.

(d) (A) classification. Frozen peas that are practically free from defects may be given a score of 36 to 40 points. “Practically free from defects” means that: (See Table I of this subpart)

(1) For each 30 ounces of net weight there may be present not more than the following amounts of harmless extraneous vegetable material:

(i) Group 1; flat material, pieces having an aggregate area of not more than \( \frac{1}{4} \) square inch (equivalent to \( \frac{1}{2} \) inch \( \times \frac{1}{2} \) inch) on the surface; or 1 piece of any size;

(ii) Group 2; spherical material, 1 unit;

(iii) Group 3; cylindrical material, a piece or pieces which singly or in the aggregate do not exceed \( \frac{1}{2} \) inch in length.

(2) Not more than 7 percent, by count, of the peas may be pieces of peas;

(3) Not more than 2 percent, by count, of the peas may be blemished including not more than one-half of 1 percent, by count, of all the peas that may be seriously blemished;

(4) The presence of harmless extraneous vegetable material, pieces of peas, blemished peas, seriously blemished peas, and other defects individually or collectively, does not more than slightly affect the appearance or eating quality of the product.

(e) (B) classification. Frozen peas that are reasonably free from defects may be given a score of 32 to 35 points. Frozen peas that fall into this classification, except for pieces of peas, shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a partial limiting rule). “Reasonably free from defects” means that: (see Table I of this subpart)

(1) For each 30 ounces of net weight there may be present not more than the
following amounts of harmless extraneous vegetable material:

(i) When present as a single group:

(a) Group 1; flat material, pieces having an aggregate area of not more than $\frac{1}{2}$ square inch (equivalent to $\frac{1}{2}$ inch x 1 inch) on the surface; or 1 piece of any size; or

(b) Group 2; spherical material, 2 units; or

(c) Group 3; cylindrical material, a piece or pieces which singly or in the aggregate do not exceed 1 inch in length.

(ii) When present in combination, not more than 2 of any of the following groups:

(a) Group 1; flat material, pieces having an aggregate area of not more than $\frac{1}{4}$ square inch (equivalent to $\frac{1}{2}$ inch x $\frac{1}{2}$ inch) on the surface; or 1 piece of any size;

(b) Group 2; spherical material, 1 unit;

(c) Group 3; cylindrical material, a piece or pieces which singly or in the aggregate do not exceed $\frac{1}{2}$ inch in length.

(2) Not more than 10 percent, by count, of the peas may be pieces of peas;

(3) Not more than 4 percent, by count, of the peas may be blemished including not more than 1 percent, by count, of all the peas that may be seriously blemished.

(4) The presence of harmless extraneous vegetable material, pieces of peas, blemished peas, seriously blemished peas, and other defects, individually or collectively, does not materially affect the appearance or eating quality of the product.

(f) (C) classification. Frozen peas that are fairly free from defects may be given a score of 28 to 31 points. Frozen peas that fall into this classification, except for pieces of peas, shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a partial limiting rule). "Fairly free from defects" means that: (see Table 1 of this subpart)

(1) For each 30 ounces of net weight there may be present not more than the following amounts of harmless extraneous vegetable material:

(i) When present as a single group:

(a) Group 1; flat material, pieces having an aggregate area of not more than 1 square inch (equivalent to 1 inch x 1 inch) on the surface; or 1 piece of any size; or

(b) Group 2; spherical material, 3 units; or

(c) Group 3; cylindrical material, a piece or pieces which singly or in the aggregate do not exceed 2 inches in length.

(ii) When present in combination, not more than 2 of any of the following groups:

(a) Group 1; flat material, pieces having an aggregate area of not more than $\frac{1}{2}$ square inch (equivalent to $\frac{1}{2}$ inch x 1 inch) on the surface; or 1 piece of any size;

(b) Group 2; spherical material, 2 units;

(c) Group 3; cylindrical material, a piece or pieces which singly or in the aggregate do not exceed 1 inch in length.

(2) Not more than 15 percent, by count, of the peas may be pieces of peas;

(3) Not more than 6 percent, by count, of the peas may be blemished including not more than 3 percent, by count, of all the peas that may be seriously blemished;

(4) The presence of harmless extraneous vegetable material, pieces of peas, blemished peas, seriously blemished peas, and other defects, individually or collectively, does not seriously affect the appearance or eating quality of the product.

(g) (SStd.) classification. Frozen peas that fail to meet the requirements of paragraph (f) of this section may be given a score of 0 to 27 points. Frozen peas that fall into this classification, except for pieces of peas that exceed 15 percent, by count, but do not exceed 20 percent, by count, shall not be graded above Substandard, regardless of the total score for the product (this is a partial limiting rule).
<table>
<thead>
<tr>
<th>Kind of defect</th>
<th>Grade A</th>
<th>Grade B</th>
<th>Grade C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When present as single group</td>
<td>Combination of any 2</td>
<td>When present as single group</td>
</tr>
<tr>
<td>Harmless extraneous vegetable material (for each 30 ozs):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1—Flat material</td>
<td>$rac{3}{8}$ square inch or 1 piece of any size. or 1 piece or pieces not exceeding $1\frac{1}{2}$ in. aggregate.</td>
<td>$rac{3}{8}$ square inch or 1 piece of any size. or 1 piece or pieces not exceeding $1\frac{1}{2}$ in. aggregate.</td>
<td>1 square inch or 1 piece of any size. or 1 piece or pieces not exceeding $1\frac{1}{2}$ in. aggregate.</td>
</tr>
<tr>
<td>Group 2—Spherical material</td>
<td>1 unit or 2 units</td>
<td>1 unit</td>
<td>3 units</td>
</tr>
<tr>
<td>Group 3—Cylindrical material</td>
<td>1 piece or pieces not exceeding $1\frac{1}{2}$ in. aggregate.</td>
<td>1 piece or pieces not exceeding $1\frac{1}{2}$ in. aggregate.</td>
<td>1 piece or pieces not exceeding 2 in. aggregate.</td>
</tr>
<tr>
<td>Pieces of peas</td>
<td>7 percent by count or 10 percent by count</td>
<td>15 percent by count or 1 percent by count</td>
<td>3 percent by count</td>
</tr>
<tr>
<td>Blemished peas</td>
<td>2 percent by count</td>
<td>4 percent by count</td>
<td>which includes</td>
</tr>
<tr>
<td>Seriously blemished peas</td>
<td>$\frac{1}{2}$ percent by count</td>
<td>1 percent by count</td>
<td>which includes</td>
</tr>
</tbody>
</table>

1 Limiting rule does not apply.
§ 52.3517 Tenderness and maturity.

(a) General. The factor of tenderness and maturity refers to the degree of maturity of frozen peas as determined on the basis of the brine flotation test set forth in § 52.3518 by first removing the skins from the peas, and as reflected in the tenderness determined on the cooked product.

(b) (A) classification. Frozen peas that are tender may be given a score of 36 to 40 points. "Tender" means that the peas are in such a stage of maturity that not more than 10 percent, by count, of the peas may sink in a solution containing 13 percent, by weight, of salt (See Table II of this subpart); and that the frozen peas after cooking are very tender upon eating.

(c) (B) classification. Frozen peas that are reasonably tender may be given a score of 32 to 35 points. Frozen peas that fall into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule). "Reasonably tender" means that the peas are in such a stage of maturity that not more than 12 percent, by count, of the peas may sink in a solution containing 15 percent, by weight, of salt (See Table II of this subpart); and that the frozen peas after cooking are reasonably tender upon eating.

(d) (C) classification. Frozen peas that are fairly tender may be given a score of 28 to 31 points. Frozen peas that fall into this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule). "Fairly tender" means that the peas are in such a stage of maturity that not more than 16 percent, by count, of the peas may sink in a solution containing 16 percent, by weight, of salt (see Table II of this subpart); and that the frozen peas after cooking are fairly tender upon eating.

(e) (SSpd.) classification. Frozen peas that fail to meet the requirements of paragraph (d) of this section may be given a score of 0 to 27 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).
Other Processed Food Products (§§ 52.1 through 52.87 of this title).

SCORE SHEET

§ 52.3520 Score sheet for frozen peas.

<table>
<thead>
<tr>
<th>Size and kind of container</th>
<th>Score points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container mark or identification</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td></td>
</tr>
<tr>
<td>Net weight (ounces)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>(A) 18-20</td>
</tr>
<tr>
<td></td>
<td>(B) 16-17</td>
</tr>
<tr>
<td></td>
<td>(C) 14-15</td>
</tr>
<tr>
<td></td>
<td>(SSld.) 0-13</td>
</tr>
<tr>
<td></td>
<td>(A) 36-40</td>
</tr>
<tr>
<td></td>
<td>(B) 32-35</td>
</tr>
<tr>
<td></td>
<td>(C) 28-31</td>
</tr>
<tr>
<td></td>
<td>(SSld.) 0-27</td>
</tr>
<tr>
<td>Defects</td>
<td></td>
</tr>
<tr>
<td>Tenderness and maturity</td>
<td></td>
</tr>
<tr>
<td>Total Score</td>
<td>100</td>
</tr>
</tbody>
</table>

Flavor ( ) Good ( ) Fairly good ( ) Off
Varietal characteristics ( ) Similar ( ) Dissimilar
Grade

1 Indicates limiting rule.
2 Indicates partial limiting rule.

The United States Standards for Grades of Frozen Peas (which is the sixth issue) contained in this subpart shall become effective fifteen days after the date of publication in the FEDERAL REGISTER and thereupon will supersede the United States Standards for Grades of Frozen Peas which have been in effect since March 15, 1945.

Dated: May 7, 1959.

ROY W. LENNARTSON,
Deputy Administrator,
Marketing Services.

Published in the Federal Register, May 12, 1959 (24 F. R. 3782)
UNITED STATES STANDARDS FOR GRADES OF
PEANUT BUTTER

Effective March 23, 1962

PRODUCT DESCRIPTION, TEXTURES, TYPES, GRADES

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PRODUCT DESCRIPTION, TEXTURES, TYPES, GRADES

§ 52.3061 Product description.

Peanut butter is a cohesive, comminuted food product prepared from clean, sound, shelled peanuts by grinding or milling properly roasted, mature peanut kernels from which the seed coats have been removed and to which salt is added as a seasoning agent. Suitable seasoning agents other than salt, suitable stabilizing ingredient(s), and ingredient(s) of nutritive value as permitted under the provisions of the Federal Food, Drug, and Cosmetic Act may be added in manufacturing the product. The product is manufactured and packed in accordance with good commercial practice to assure freshness and good keeping quality.

§ 52.3062 Textures of peanut butter.

(a) “Smooth” texture means the peanut butter has a very fine, very even texture with no perceptible grainy peanut particles.

(b) “Medium” texture means the peanut butter has a definite grainy texture with perceptible peanut particles approximating not more than \( \frac{1}{16} \) inch in any dimension.

(c) “Chunky” or “Crunchy” texture means peanut butter which has a partially fine or partially grainy texture with substantial amounts of peanut particles larger than \( \frac{1}{16} \) inch in any dimension.

§ 52.3063 Types of peanut butter.

(a) Stabilized type. Stabilized peanut butter is any peanut butter prepared (1) by any special process, and/or (2) with any suitable added ingredient(s) designed or intended to stabilize the product.

(b) Non-stabilized type. Non-stabilized peanut butter is any peanut butter prepared without special process or added ingredient(s) to stabilize the product.

§ 52.3064 Grades of peanut butter.

(a) “U.S. Grade A” (or “U.S. Fancy”) is the quality of peanut butter that has a good color, that has a good consistency, that is practically free from defects, that has a good flavor and good aroma, that has uniform dispersion of added ingredient(s), and that scores not less than 90 points when scored in accordance with the scoring system outlined in this subpart.

(b) “U.S. Grade C” (or “U.S. Standard”) is the quality of peanut butter that

\(^1\) Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act or with applicable state laws and regulations.
has a fairly good color, that has a fairly good consistency, that is fairly free from defects, that has a fairly good flavor and a fairly good aroma, that has reasonably uniform dispersion of added ingredient(s), and that scores not less than 80 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the quality of peanut butter that fails to meet the requirements of U.S. Grade C.

**FACTORS OF QUALITY**

§ 52.3065 Ascertaining the grade.

The grade of peanut butter may be ascertained by considering, in addition to the requirements of the respective grade, the following factors: Color, consistency, absence of defects, and flavor and aroma. The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given such factors are:

<table>
<thead>
<tr>
<th>Factors</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Color</td>
<td>20</td>
</tr>
<tr>
<td>(2) Consistency</td>
<td>20</td>
</tr>
<tr>
<td>(3) Absence of defects</td>
<td>30</td>
</tr>
<tr>
<td>(4) Flavor and aroma</td>
<td>30</td>
</tr>
</tbody>
</table>

Total score: 100

§ 52.3066 Ascertaining the rating for the factors which are scored.

The essential variations within each factor which is scored are so described that the value may be ascertained for each factor and expressed numerically. The numerical range within each factor is inclusive (for example, "18 to 20 points" means 18, 19, or 20 points).

§ 52.3067 Color.

(a) General. The color of peanut butter refers to the color hue and color intensity of the overall mass, regardless of the texture and regardless of the variety of peanuts from which prepared.

(b) Color standards. Peanut butter color may be classified in accordance with the following outline for the applicable U.S. Department of Agriculture Color Standards (hereinafter, as may be referred to as "USDA Colors"):
that scores in this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule). "Fairly good color" means color typical of peanut butter prepared from properly roasted peanuts and otherwise properly processed peanut butter; such typical color may be slightly dull and/or may have a slight grey cast; may be lighter brown in color than USDA Color 1 but is not excessively pale as indicative of insufficient roasting; or, such typical color may be more brown than USDA Color 4 but is not excessively brown as indicative of excessive roasting.

(f) (Std) classification. Peanut butter that is off color for any reason or that fails to meet the requirements of paragraph (e) of this section may be given a score of 0 to 15 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.3069 Absence of defects.

(a) General. The factor of absence of defects refers to the degree of freedom from dark particles and from any other defects (including water-insoluble inorganic residue) which affect the wholesomeness or detract from the appearance or edibility of the product.

(b) Definition of water-insoluble inorganic residue. "Water-insoluble inorganic residue" means water-insoluble inorganic residue as determined in accordance with an applicable method referenced in § 52.3071.

(c) (A) classification. Peanut butter that is practically free from defects may be given a score of 27 to 30 points. "Practically free from defects" means that the presence of dark particles and any other defects does not more than slightly affect the appearance or eating quality of the product; and means that there may be present not more than 3 milligrams of water-insoluble inorganic residue per 100 grams of peanut butter: Provided, That such residue which may be present does not affect the edibility or wholesomeness of the product.

(d) (C) classification. Peanut butter that has fairly good consistency may be given a score of 24 to 26 points. "Fairly good from defects" means that the presence of dark particles and any other defects
does not more than materially affect the appearance or eating quality of the product; and means that there may be present not more than 20 milligrams of water-insoluble inorganic residue per 100 grams of peanut butter: Provided, That such residue which may be present does not affect the edibility or wholesomeness of the product.

(e) (SStd) classification. Peanut butter that fails to meet the requirements of paragraph (d) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.3070 Flavor and aroma.

(a) (A) classification. Peanut butter that has a good flavor and good aroma may be given a score of 27 to 30 points. "Good flavor and good aroma" means a flavor and aroma typical of freshly roasted and freshly ground peanuts and of properly proportioned and blended materials, free from staleness, free from rancidity, and free from objectionable flavors and objectionable odors of any kind. To score in this classification, there may be not less than 1.0 percent, nor more than 1.8 percent, by weight, of salt in the finished peanut butter.

(b) (C) classification. Peanut butter that has fairly good flavor and fairly good aroma may be given a score of 24 to 26 points. Peanut butter that scores in this classification shall not be graded above U.S. Grade C, regardless of the total score for the product (this is a limiting rule). "Fairly good flavor and fairly good aroma" means a flavor and aroma that is typical of properly prepared peanut butter, which may be lacking good flavor and good aroma, but is free of objectionable flavors and objectionable aromas of any kind. To score in this classification there may be not less than 0.5 percent, nor more than 2.5 percent, by weight, of salt in the finished peanut butter.

(c) (SStd) classification. Peanut butter that fails to meet the requirements of paragraph (b) of this section may be given a score of 0 to 23 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

EXPLANATIONS AND METHODS OF ANALYSES

§ 52.3071 Methods of analysis for water-insoluble inorganic residue and salt.

The water-insoluble inorganic residue and salt in peanut butter is determined in accordance with the latest official method outlined in the Official Methods of Analysis of the Association of Official Agricultural Chemists or any other method that gives equivalent results.

LOT INSPECTION AND CERTIFICATION

§ 52.3072 Ascertaining the grade of a lot.

The grade of a lot of peanut butter covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (§§ 52.1 through 52.87).

SCORE SHEET

§ 52.3073 Score sheet for peanut butter.

The United States Standards for Grades of Peanut Butter (which is the second issue) contained in this subpart shall become effective 30 days after the date of publication hereof in the Federal Register, and thereupon will supersede the United States Standards for Grades of Peanut Butter which have been in effect since September 1, 1942.


G. R. OrANGE, Deputy Administrator, Marketing Services.
These are the Federal grade marks for beef that may be found in retail stores. Two other grades of beef—Cutter and Canner—are ordinarily used in processed meat products and are rarely, if ever, sold as cuts in retail stores.

The purple stamp used for marking carcasses and products that have passed inspection for wholesomeness. The number identifies the establishment where the product was prepared.
HOW THE DUAL GRADING SYSTEM FOR BEEF IS APPLIED TO CATTLE AND BEEF CARCASSES

The dual grading system is a new concept in beef grading, becoming available on a trial basis, July 1, 1962. It represents a major step toward a more accurate and precise identification of the factors relating to value in beef. It is administered by the Livestock Division of USDA's Agricultural Marketing Service.

The service is available to members of the trade who wish to use it and pay for it on a fee basis. The current Federal meat grading system continues to be offered on the same basis.

These photographs show how the dual grading system works by providing separate grades for two of the main factors that determine the value of a beef carcass:

1. the quality, or palatability, of the lean meat;
2. the amount of trimmed retail cuts from the carcass.

N-28254--This Federal meat grader -- there are 485 of them stationed throughout the country -- is applying the familiar roller stamp of USDA quality grades to a beef carcass. He will use another stamp to apply the "cutability" numerical grade to each quarter. Both stamps are kept under lock and key except when they are being used by the Federal grader.

BN-16006--The quality grade of dual graded beef will be identified by a ribbon-type imprint of the quality name just as it is now. The cutability grade will be stamped on each quarter of the carcass. Both will appear in red ink. However, the cutability grade, mainly of interest to the trade, will not necessarily show up on retail cuts as the quality grades do.
RIB EYES COMPARED

Here is the rib eye from the "meat-type" steer. Notice that the fat covering is only 1/3 of an inch thick. And how large the rib eye is—13 square inches! Look how much more lean meat there is in this cut than in the cut in Picture BN-16008 below.

This is the rib eye from the over-finished steer. Notice that the fat covering is 1.2 inches thick—four times larger than that of the rib eye shown in Picture BN-16007 above. And the rib eye is smaller—only 9 square inches.

Courtesy of the Photography Division, Office of Information, U.S. Department of Agriculture.