

UNITED STATES DEPARTMENT OF AGRICULTURE
 FOOD SAFETY AND INSPECTION SERVICE
 WASHINGTON, DC

FSIS DIRECTIVE

7120.1
Rev. 56

9/1/21

SAFE AND SUITABLE INGREDIENTS USED IN THE PRODUCTION OF MEAT, POULTRY, AND EGG PRODUCTS

I. PURPOSE

This directive provides inspection program personnel (IPP) with the latest updates to the list of substances that may be used in the production of meat, poultry, and egg products. As a reminder, this directive no longer provides the complete listing of approved substances, On-Line Reprocessing (OLR) and Off-Line Reprocessing (OFLR) Antimicrobial Intervention Systems. Instead, it only provides a list of the latest changes. The complete listing of [OLR and OFLR Antimicrobial Intervention Systems](#) is available at the link above. FSIS is also providing a link to the [complete list of safe and suitable ingredients](#) and the list in [9 CFR 424.21\(c\)](#) of additional acceptable food ingredients.

II. CANCELLATION

FSIS Directive 7120.1, Revision 55 *Safe and Suitable Ingredients Used in the Production of Meat, Poultry, and Egg Products*, 02/24/21

III. LATEST UP-DATE TO THE LIST OF SUBSTANCES

Table 1: Summary of Updates to list of substances

1) The use of the substances is consistent with FDA's labeling definition of a processing aid., 2) Generally Recognized as Safe (GRAS), 3) Secondary Direct Food Additive, 4) Direct Food Additive, 5) Color Additive, 6) Food Contact Substance (FCS) subject to food contact notifications (FCN) is defined as any substance that is intended for use as a component of materials used in manufacturing, packing, packaging, transporting, or holding food if such use is not intended to have any technical effect in such food.				
Substance	Intended Use of Product	Amount	Reference	Labeling Requirements
Acidifiers/Alkalizers				
An aqueous solution of citric and hydrochloric acids	pH control agent for use in process water for poultry and red meat processing	An aqueous solution of citric and hydrochloric acids, sufficient for purpose	Acceptability determination	None under the accepted conditions of use (1)
Antimicrobials				
Buffered lactic acid	Beef and pork carcasses, heads, offals, subprimals and trimmings	Solutions of 2% - 5% lactic acid and a minimum 2:1 ratio of lactic acid to sodium lactate	Acceptability Determination	None under the accepted conditions of use (1)
A proprietary aqueous mixture of sodium diacetate,	As an antimicrobial spray or dip on	Not to exceed a 20% solution of the aqueous	A proprietary aqueous mixture of sodium	As an antimicrobial spray or dip on

lactic acid, nisin preparation and pectin	RTE meat and poultry products.	mixture, not to exceed a 0.2% nisin concentration.	diacetate, lactic acid, nisin preparation and pectin	RTE meat and poultry products.
Aqueous mixture of peroxyacetic acid (PAA), hydrogen peroxide (HP), acetic acid (AA), and 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP), optionally sulfuric acid (SA).	1) In process water applied as a wash, spray, dip, rinse, chiller water, low-temperature (less than 40°F) immersion bath, or scald water for whole or cut poultry carcasses, parts, trim, and organs; 2) in process water or ice used in washing, rinsing, or cooling whole or cut meat carcasses, parts, trim, and organs; 3) in process water, ice, or brine used in washing, rinsing, or cooling processed and preformed meat products; 4) in process water, ice, or brine used in washing, rinsing, or cooling processed and preformed poultry products; 5) in brines, marinades, and sauces applied to the surface or injected into	1) 2000 ppm PAA, 800 ppm HP, and 133 ppm HEDP 2) 1800 ppm PAA, 700 ppm HP, and 120 ppm HEDP 3) 495 ppm PAA, 193 ppm HP, and 33 ppm HEDP 4) 230 ppm PAA, 90 ppm HP, and 15 ppm HEDP pH range for the above applications: 1.0 – 12.0; spray contact time: 0.5 – 15 seconds; wash and rinse contact time: 0.5-120 seconds; spray pressure: 5 – 120 psi; dip dwell time: 0.5-60 seconds 5) 50 ppm PAA, 17	FCN 1986 (previously FCN 1867)	None under the accepted conditions of use (1)
A mixture of peroxyacetic acid, hydrogen peroxide, 1-	In process water or ice used for washing, rinsing, storing or cooling of	At a level not to exceed 220 ppm, hydrogen peroxide at a level not to	Food Contact Notification (FCN) 908	None under the accepted conditions for use (1)

hydroxyethylidene-1, 1-diphosphonic acid (HEDP), sulfuric acid and acetic acid	processed and preformed meat and poultry products	exceed 85 ppm, 1-hydroxyethylidene-1, 1-diphosphonic acid (HEDP) at a level not to exceed 11 ppm, sulfuric acid and acetic acid.		
An aqueous mixture of peroxyacetic acid and xanthan gum	Process water or ice used in the production, processing and preparation of whole or cut poultry carcasses, parts, trim, and organs.	Concentration not to exceed 1500 ppm PAA, 800 ppm HP, 133 ppm HEDP, and 0.5% xanthan gum; pH range of 1-6; and spray contact time: 0.5 – 15 seconds; wash and rinse contact time: 0.5-120 seconds	Acceptability Determination	Listed as “xanthan gum” in the ingredients statement (4)
Bacteriophage preparation of up to 6 Salmonella targeted phages	Ready-to-eat and raw poultry products, ready-to-eat and raw red meat carcasses, subprimals and trimmings.	Applied to ready-to-eat and raw poultry products, ready-to-eat and raw red meat carcasses, subprimals and trimmings up to a level of 1×10^8 PFU/g of food.	GRAS Notice No. (GRN) 435	None under the conditions of use (1)
An aqueous mixture of peroxylic acid (PLA), hydrogen peroxide (HP), lactic acid, water, optional 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP), optionally sulfuric acid, and optionally phosphoric acid.	(1) in process water or ice that contacts meat or poultry carcasses, parts, trim, and organs. (2) in process water, ice, or brine that contacts processed and pre-formed meat and poultry.	(1) The level not to exceed 1000 ppm PLA, 2384 ppm HP, and 5.5 ppm HEDP (2) The level not to exceed 495 ppm PLA, 11180 ppm HP, and 2.7 ppm HEDP.	FCN 1946	None under the accepted conditions of use
An aqueous solution of citric and hydrochloric acids adjusted to a pH of 1.0 to 2.0	Poultry carcasses, parts, trim, and organs	An aqueous solution of citric and hydrochloric acids adjusted to a pH of 1.0 to 2.0 applied as a spray or dip with a minimum contact	Acceptability determination	None under the accepted conditions of use (1)

		time of 2 seconds pH measured prior to application		
An aqueous solution of citric and hydrochloric acids adjusted to a pH of 0.5 to 2.0	Meat carcasses, parts, trim, and organs	An aqueous solution of citric and hydrochloric acids adjusted to a pH of 0.5 to 2.0 applied as a spray or dip for a contact time of 2 seconds pH measured prior to application	Acceptability determination	None under the accepted conditions of use (1)
Emulsifying Agents				
Sunflower lecithin	An emulsifying agent in meat and poultry products	Sufficient amount for emulsification.	GRAS Notice No. (GRN) 939, 9 CFR 424.21	None under the accepted conditions for use (2)
Miscellaneous				
Algal oil from Schizochytrium sp. strain ONC-T18 (algal oil) as an oil formulation (40% docosahexaenoic acid (DHA)	As an alternative edible oil in meat (including Siluriformes fish products) at maximum use levels of 1.25% by weight and in poultry products at maximum use levels of 0.75% by weight	Magnesium distearate in accordance with good manufacturing practices and hydrophobic silica up to 2% wet weight	GRAS Notice No. (GRN) 862	Listed in the ingredients statement by its common or usual name "DHA Algal Oil" in the ingredients statement (2)
Algal oil (minimum 35% docosahexaenoic acid (DHA)) from Aurantiochytrium limacinum1,2 strain G3 (Aurantiochytrium sp. strain G3) (algal oil 35% DHA))	As an alternative edible oil in the production of nonstandardized egg, meat, and poultry products	At levels not to exceed 1.00% by weight of the product formulation for egg and meat products and 0.60% for poultry products.	GRAS Notice No. (GRN) 913	Listed in the ingredients statement by its common or usual name "DHA rich algal oil" (2)
Poultry Protein	As a fat blocking ingredient in the coating of finished poultry products of the same species	Not to exceed 0.157% in the total product formula	GRAS Notice No. (GRN) 168	None under the accepted conditions for use (2)
A proprietary aqueous mixture of polydimethylsiloxane , silicon dioxide,	Antifoaming agent in curing solutions and non-curing brine	Not to exceed 178 ppm (50 ppm of polydimethylsiloxa ne) in curing	Acceptability Determination 21 CFR 173.340	None under the accepted conditions of use (1)

polysorbate 60, sorbitan monostearate, sodium carboxymethylcellulose and formaldehyde	solutions for meat and poultry products.	solutions and non-curing brine solutions for meat and poultry products where the amount of polydimethylsiloxane does not exceed 10 ppm in the finished meat or poultry product.		
List of Approved On-Line Reprocessing (OLR) Antimicrobial Systems for Poultry				
Approved OLR System	Company Name/ Distributor	Substance	PPM Concentration	Method of Application
ASSIST	Safe Foods Corporation	An aqueous solution of sulfuric acid and sodium sulfate	Concentration sufficient to achieve a targeted pH range of 1-2.2; delivered at a minimum system pressure of 0.5 psi; and minimum contact time of 2 seconds	Spray, Drench, Dip
Inspexx™150; Inspexx™250; Inspexx™250 S; Inspexx™250 PLUS	Ecolab	FCN 2046	The concentration of PAA is applied at 20 –2000 ppm PAA, 1474 ppm hydrogen peroxide and 136ppm 1-hydroxyethylidene-1,1-diphosphonic acid, and 6.7 ppm DPA; Spray exposure time: 5 – 60 seconds, pH: 2 – 8; pressure: minimum of 5 psi. Use a PAA test kit or in-line monitor to verify the PAA concentration in the water.	Spray cabinet/ Wash/IOBW
PearlOX, All-O-San	Xgenex Labs, LLC	An aqueous mixture of peroxyacetic acid (PAA), hydrogen peroxide (HP), acetic acid, 1-hydroxyethylidene-	An aqueous mixture not exceeding 2000 ppm peroxyacetic acid (PAA), 950 ppm hydrogen	Spray

		1, 1- diphosphonic acid (HEDP) and optionally sulfuric acid, (FCN 1638).	peroxide (HP), 113 ppm acetic acid, 1-hydroxyethylidene-1, 1- diphosphonic acid (HEDP) and optionally, sulfuric acid; contact time: one (1) – 120 seconds; pH 2.0 – 8.0; pressure: 5 – 170 psi, temperature: 32° to 99°F	
List of Approved Off-Line Reprocessing (OFLR) Antimicrobial Systems for Poultry				
Approved OFLR System	Company Name/ Distributor	Substance	PPM Concentration	Method of Application
Inspexx™150; Inspexx™250; Inspexx™250 S; Inspexx™250 PLUS	Ecolab	FCN 2046	The concentration of PAA is applied at 40 – 2000 ppm, 1474 ppm hydrogen peroxide and 136 ppm 1-hydroxyethylidene-1, 1-diphosphonic acid, and 6.7 ppm DPA; Spray exposure time: 5 – 60 seconds, pH: 2 – 8; pressure: minimum of 5 psi. Use a PAA test kit or in-line monitor to verify the PAA concentration in the water.	Spray cabinet/Wash/I OBW
PearlOX, All-O-San	Xgenex, LLC	An aqueous mixture of peroxyacetic acid (PAA), hydrogen peroxide (HP), acetic acid, 1-hydroxyethylidene-1, 1- diphosphonic acid (HEDP) and optionally sulfuric acid, (FCN 1638).	An aqueous mixture not exceeding 2000 ppm peroxyacetic acid (PAA), 950 ppm hydrogen peroxide (HP), 113 ppm acetic acid, 1-hydroxyethylidene-1, 1-diphosphonic acid (HEDP) and optionally, sulfuric acid; contact time: one (1) – 120 seconds; pH 2.0 – 8.0; pressure: 5 –	Spray

			170 psi, temperature: 32° to 99°F	
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IV. QUESTIONS

Refer questions regarding this directive to your supervisor or as needed to the Office of Policy and Program Development through [askFSIS](#) or by telephone at 1-800-233-3935. When submitting a question, complete the [web form](#) and select New Technology Innovations for the Inquiry Type.

NOTE: Refer to [FSIS Directive 5620.1](#), *Using askFSIS*, for additional information on submitting questions.



Assistant Administrator
Office of Policy and Program Development