United States Department of Agriculture

Agricultural Marketing Service
International Commodity Procurement
P.O. Box 419205, Mailstop 8738
Kansas City, MO 64141-6205

USDA COMMODITY REQUIREMENTS

(SF LNS 1)
SCHOOL FEEDING LIPID BASED NUTRIENT SUPPLEMENT
FOR USE IN
INTERNATIONAL FOOD ASSISTANCE PROGRAMS

Effective Date: **June 13, 2018**

SCHOOL FEEDING LIPID BASED LIPID NUTRIENT SUPPLEMENT (SF LNS)

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LIST OF ABBREVIATIONS AND ACRONYMS

Below is an Abbreviations Key to the numerous specialized acronyms and abbreviations used in this reference material.

µg	Microgram
AOAC	Association of Official Analytical Chemists
AQL	Acceptable Quality Limit
ASTM	American Society for Testing and Materials
BAGS	50 KG Polypropylene Bags
BG	Bagged Grain
BWP	Buckwheat
BWSF	Bulgur/Soy-Fortified Bulgur
Cc	Cubic Centimeter
CFR	Code of Federal Regulations
COA	Certificate of Analysis
CONEG	Coalition of Northeast Governors
CRD	Commodity Requirements Document
DACO	Deputy Administrator for Commodity Operations
DEB	Dry Edible Beans
FDA	Food and Drug Administration
FPAC	Farm Production and Conservation
FSA	Farm Service Agency
G	Gram
GHP	Good Hygiene Practices
GRAS	Generally Recognized as Safe
HACCP	Hazard Analysis and Critical Control Points
In	Inch
IPD	International Procurement Division
Kcal	Kilocalorie
KCCO	Kansas City Commodity Office
Kg	Kilogram
Lb	Pound
LNS LQ	Lipid-based Nutritional Supplement in Large Quantity
LNS MQ	Lipid-based Nutritional Supplement in Medium Quantity

MAM	Moderate Acute Malnutrition
Mm	Millimeter
MR	Milled Rice
MT	Metric Ton
PEM	Pathogen and Environmental Monitoring program
PL	Pea and Lentils
PMS	Pantone Matching System
PPB	Parts per Billion
PVO	Private Voluntary Organization
QTY	Quantity
RH	Relative Humidity
RUF	Ready-to-Use Nutritional Food
RUSF	Ready-to-Use Supplemental Food
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SF LNS	School Feeding Lipid Based Nutrient Supplement
SOP	Standard Operating Procedure
SSHE	Scraped Surface Heat Exchanger
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
WBSCM	Web Based Supply Chain Management System
WFBF	Wheat Flour/Bread Flour
WHO/FAO	World Health Organization/ Food and Agriculture Organization

CONTACT INFORMATION
Kansas City Commodity Office
Telephone: 816-926-6707 (During Normal Business Hours)

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Web-Based Supply Chain Management (WBSCM)

Helpdesk Level 1-Technical Issues

Phone: 877-WBSCM-4U or 877-927-2648 **(During Normal Business Hours)**

UG-MOKANSASC2-FSAWBSCMServiceRequest@kcc.usda.gov

USDA Website:
http://www.usda.gov/wps/portal/usda/usdahome

Registered Users Only:

Service Desk email address is WBSCM.servicedesk@caci.com.

On the Log-in prompt enter your email address for both the *User ID* and *Password* (all lower case for password) fields, and then change your password when prompted.

If you have any questions, please contact the WBSCM Service Desk at:

Phone: 877-WBSCM-4U or 877-927-2648 or **Email:** WBSCM.servicedesk@caci.com

PRODUCT DESCRIPTION

School Feeding Lipid Based Nutrient Supplement (SF LNS) is intended school children three years of age and older to complement foods available during school hours. Nutritional status during school years may be especially important for brain development, cognition, immune functioning, and other health outcomes. One review of studies examining the nutritional status of school-age children from around the world found anemia prevalent in over one-half of the children, and iron, iodine, zinc and vitamin A deficiencies prevalent in 20-30%.1 SF LNS was developed to address nutrient gaps and prevent malnutrition in school age children. It is fortified with vitamins and minerals, which may be lacking in the diets of school age children, including zinc, iron, iodine, and vitamins A and B12. It also provides a source of energy, protein, and essential fatty acids. SF-RUSF is most suitable to be used in schools: when hot lunch is not available; in addition to unfortified hot lunches; as a morning snack; and/or for pre- school programs, or other types of programs targeting nutritional support to young children. SF-RUSF is not suitable to treat moderate or severe acute malnutrition. SF- RUSF is dosed at one 50g sachet per child per day as a supplement to the normal diet. SF LNS is packaged in flexible packaging in the form of paste suitable for use by the Federal Government, humanitarian agencies, and non- governmental organizations. SF LNS may be used in climatic extremes from the arctic to tropical zones. SF LNS will be used by multiple ethnic and cultural groups. No alcohol, animal products other than dairy products, nor any known allergens except peanuts, soy, tree nuts, and dairy products shall be used in the manufacture of these items.

SF LNS is generally made with oil seeds, tree nuts, pulses, cereals, sugar, dairy protein, vegetable oils, vitamins and minerals. Applicable food safety and quality standards include, but are not limited to:

(1) All containers and packaging materials shall be constructed to meet the requirements of the FDA for safe contact with the packaged product.
(2) In addition, all containers and packaging materials shall be constructed to comply with the sum concentration levels of lead, cadmium, mercury, and hexavalent chromium addressed by the Coalition of Northeast Governors (CONEG) model legislation. The sum of the concentration levels of lead, cadmium, mercury and/or hexavalent chromium present in any package or packaging component shall not exceed 100 parts per million. Concentration levels shall be determined using American Standard of Testing Materials test methods, as revised, or U.S. Environmental Protection Agency test methods for evaluating solid waste, S-W 846, as revised.
(3) General principles for addition of essential nutrients to foods: CAC/GL 09-1987 (amended).
(4) Recommended International Code of Practice. General Principles of Food Hygiene CAC/RCP 1-1969, Rev. 4-2003.
(5) ISO 22000:2005: Food safety management systems

[1] Best C, Neufingerl N, van Geel L, van den Briel T, Osendarp S. The nutritional status of school-aged children: why should we care? Food Nutr Bull. 2010 Sep;31(3):400-17.

(6) Code of Hygienic Practices for low-moisture Foods. CAC/RCP 75-2015. Adopted in 2015.

FORMULATION

Table 2.1. Nutritional requirements for SF LNS, in a per 100g of finished product basis.

Nutrient[2]	Unit	(SF LNS)[3]	
		Minimum Qty	Maximum Qty
Energy	Kcal	510	560
Protein	%	11	20
Fat	%	27	40
Micronutrients			
Retinol (Vit A)*	µg	700	1100
Thiamin (Vit B1)	mg	0	2.4
Riboflavin (Vit B2)	mg	0	1.5
Nicotinamide (Vit B3)	mg	0	14.5
Pyridoxine (Vit B6)	mg	0	1.6
Folate (Vit B9) – DFE	µg	240	-
Cobalamine (Vit B12)	µg	2.3	-
Ascorbate (Vit C)	mg	50	-
Cholecalciferiol (Vit D)	µg	0	14.3
Tocopherol Acetate (Vit E)	mg	9	-
Calcium (Ca)	mg	0	385
Copper (Cu)	µg	735	900
Iodine (I)*	µg	150	240
Iron (Fe)*	mg	12	16
Magnesium (Mg)	mg	0	175
Phosphorus (P)	mg	0	490
Potassium (K)	mg	0	1085
Selenium (Se)	µg	0	55
Sodium (Na)	mg	0	270
Zinc (Zn)	mg	10	16

* Can be removed from fortification if fortification or supplementation coverage existing programming area.

[2] This nutritional profile is expected in finished product at time of consumption (**Tc**), assuming an average **Tc** of eighteen (18) months. Values in % are weight-based. This table should also be used as reference for nutritional labeling on packaging.

[3] Mostly the micronutrients that are of concern are iron, iodine, vitamin A and zinc (Best et al 2010) plus vitamin Folic acid and vitamin B12 since high prevalence of deficiencies is anticipated in low dietary diversity contexts (Benoist 2008). Vitamin C is required for better iron absorption.

Table 2.2. Recommended chemical forms and sources.[4]

Nutrient	Unit	Recommended nutrient sources (/alternative options)
Retinol (Vit A)[5]	µg	Dry Vitamin A palmitate / Dry Vitamin A acetate
Thiamin (Vit B1)	mg	Thiamine mononitrate / Thiamine hydrochloride
Riboflavin (Vit B2)	mg	Riboflavin
Niacin (Vit B3)	mg	Niacinamide
Pyridoxine (Vit B6)	mg	Pyridoxine hydrochloride
Folic acid (Vit B9)	µg	Folic acid food grade
Cobalamine (Vit B12)	µg	Vitamin B12 (0.1 sd)
Ascorbate (Vit C)	mg	Ascorbic acid fine powder
Cholecalciferiol (Vit D)	µg	Dry Vitamin D3 (sd)
Tocopherol Acetate (Vit E)	mg	Dry Vitamin E acetate (50% DL-alpha-tocopherol)
Calcium (Ca)	mg	Di-Calcium Phosphate anhydrous/ tricalcium phosphate
Copper (Cu)	mg	Copper sulphate anhydrous/copper gluconate
Iodine (I)	µg	Potassium iodide (10% trituration)
Iron (Fe)	mg	Ferrous sulphate monohydrate, dried / ferrous sulfate / ferrous fumarate, encapsulated or not
Magnesium (Mg)	mg	Magnesium sulphate monohydrate/ magnesium citrate or gluconate
Manganese (Mn)	mg	Manganese sulphate monohydrate
Phosphorus (P)	mg	Di-Calcium Phosphate anhydrous / tricalcium phosphate
Potassium (K)	mg	Potassium chloride, tri potassium citrate or potassium phosphate
Selenium (Se)	µg	Sodium selenite/ sodium selenate
Zinc (Zn)	mg	Zinc sulfate anhydrous

PROCESS AND PRODUCT DESCRIPTION

SF LNS are generally processed using milled roasted peanuts, other nuts, pulses or oil seeds, blended with vegetable oils, dairy protein, minerals and vitamin premix through a batch-type blending step, under a high temperature (between 75 and 130°C) enclosed system. Processing may include a scraped surface heat exchanger (SSHE) with adequate residence time as pasteurization or kill step, specific for high viscosity product so it would not generate severe fouling during processing. Product is hot-filled and ideally rapidly cooled down. The product shall be a thick, homogeneous paste. The flavor shall be typical of the product and ingredients, without off- flavors or flavors attributable to the vitamins and minerals. The paste shall not show evidence of oil separation and shall be as smooth as possible, with minimal granulation so as to not elicit chewing. Color, taste and appearance shall be typical for the products and not show evidence of over processing.

[4] These are preferred chemical forms. There might be other options possible, which supplier may opt to use in consultation with contracting agency, as long as it does not impact dosing and functionality.
[5] Beadlet or spray dried form can be used assuming there is no carryover of antioxidants not approved in codex.

ANALYTICAL REQUIREMENTS

Table 4.1. Nutritional analytical values per 100 grams of finished product.

No	Parameter	Units	SF LNS		Reference Methods (AOAC)[6]
			MIN	MAX	
Main Composition					
1	Protein (by weight)	%	11	20	988.05, 992.15
2	Fat (total)	%	27	40	996.06, 991.36, 950.54
3	Water Activity	-		0.5	978.18
Vitamins and Minerals (expressed in a per 535 kcal / per 100g of product)					
4	Vitamin A (retinol isomers)	µg	700	1100	2001.13, 2011.11, or 2011.13
5	Vitamin C	mg	50	-	984.26, 967.21
6	Iron	mg	12	16	985.35, 984.27, or 999.10

Table 4.2. Microbiological release criteria, contaminants and reference methods in the finished product.

Microbiological Test[7]	IC/SU	n	c	m	M	Report Unit	Ref. Methods
Enterobacteriaceae	I/10	10	2	10	100	/g	AOAC 975.55; AOAC 2003.01
Salmonella[8]	C/10	10	0	0	0	Absent/25 g	2004.03, 2003.09, 2011.03, or BAM, Ch. 5
Aflatoxin B1, B2, G1 and G2. (ppb)	Max 10 ppb						AACC 45-16; 990.33, 991.31, 998.03, or 999.07

Annotations:

IC: Whether the testing sample is individual (I) or composite (c)
SU: Sample Units
n: Number of sub-samples to be examined
c: Maximum Number of acceptable sample units between m and M
m: Maximum of cfc of the organism per gram (or ppb) that may be accepted
M: Maximum allowable number of microorganism (cfu) per gram in any one sub-sample. Any sub-sample with a number above M causes the rejection of the lot under consideration.

[6] Other comparable, equivalent and validated methods if cost effectiveness is demonstrated.

[7] Based on WHO/FAO Expert recommendation of 11 December 2014 on the microbial safety of lipid-based ready to use foods (RUF).

[8] These sampling criteria assume that the facility has stringent preventive food safety and quality programs which must include a validated **HACCP** system, along with corresponding prerequisite programs, as well as a Pathogen and Environmental Monitoring Program (**PEM**) and **microbiology zoning** demarcation and policy.

QUALITY ASSURANCE

5.1 START-UP

A. Suppliers shall go through normal start-up process, as a preparatory or first production run in which the supplier develops and documents baseline data on composition, micronutrient levels, microbiology, operator training, grading table (sensory analysis) and all calibrations necessary before running at full capacity. Important elements to assess during start-up include implementation and validation of HACCP plans, pathogen and environmental monitoring procedures (PEM), microbiology zoning policies, sanitation program and any applicable food safety and quality guideline referenced in the product description section in this document. Suppliers may be required to submit samples of preliminary production for USG for organoleptic/sensory acceptability. (The solicitation can indicate whether submittal of samples to USG for acceptability is required.)

5.2 INSPECTIONS AND AUDITS

A. Prior to any award, suppliers should have demonstrated sound quality and food safety programs, through written quality programs and a letter expressing its commitment to the highest quality and food safety standards through the provision of appropriate supplier's Certificates of Analysis (CoAs). Bidders should provide this information, or attest to it, as part of their bid package. USG usually carries out comprehensive audits annually, as well as unannounced routine inspections. Suppliers are expected to have and use a system for ensuring delivery of conforming product.

5.3 SAMPLING AND TESTING

A. Comprehensive testing including all the parameters in Table 2.1 and Table 4.2 shall be carried out during start up and annually thereafter. Sampling frequency and lot size shall be defined based on daily volume produced. For daily production equal or greater than 100MT, a day of production is recommended as a lot size; if daily production is less than 100MT then a week of production is recommended as lot size. For higher daily production volumes, 100MT is recommended as the inspection lot size.

For ongoing monitoring testing, on a daily basis and reported in a per lot basis, parameters in Table 4.1 will be monitored for nutritional compliance and parameters in Table 4.2 for microbiological and contaminant compliance. Both microbiological and nutritional testing for ongoing monitoring purpose must be carried out by an ISO-17025 accredited laboratory, and reported on CoAs. CoAs must be provided for each lot for USG acceptance of product. Suppliers must have an effective and reliable system for verifying that conforming product is being produced and delivered. Suppliers will be required to provide documentation of system results for each lot offered for delivery, (e.g., results of verification inspections of finished product, analytical test results, sensory and grading table data, etc.). Suppliers' documentation for each lot must demonstrate the lot's conformance using a system that applies criteria equal to or tighter than those listed in Paragraph 5.4 below. USG verification testing for parameters in Tables 4.1 and 4.2 will be performed on all inspection lots offered. Samples will be selected by supplier and submitted to USG laboratory for verification testing.

5.4 SENSORY AND GRADING TABLE ASSESSMENT

A. Conformance of finished product shall be assessed using the last version of ANSI/ASQ Z1.4 standard, using lot size as defined for manufacture, with inspection level of S-3, single sampling plan, and with AQL for critical defects of 0.1%, for major, 1.5% and for minor, 4%. Table 5.1 indicates most common defects. Supplier's system shall establish and apply thresholds of acceptability for grading table defects.

Table 5.1. Most common reasons for nonconformance and their classification.

Parameters	Measurements (Lot is non-conforming if these parameters are not met)	Methods
Texture	Product should be smooth enough so that it would not stimulate chewing; product should show no oil separation.	Supplier must develop grading table evaluation with corresponding SOP, and subjected to auditing; comparability to accepted standard.
Granulation	Granulation measurement using particular sizing is advised for start-ups but not required. Granulation should allow smooth texture, too coarse a granule can contribute to oil phase separation.	Product should be free of gritty, grainy, and sandy texture; comparability to accepted standard.
Flavor	Product should have flavor typical of the product and ingredients, without off-flavors or flavors attributable to the vitamins and minerals.	Organoleptic evaluation; comparability to accepted standard.

Finished product and packaging defects[9]			
Defect Categories			**Defect Description**
Critical[10]	**Major[11]**	**Minor[12]**	
x			Tear, hole, or open seals.
x			Aberration[13] in pouch material or seals resulting from sealing, pouch fabrication, hot filling or heat processing that reduce the effective closure seal width to less than 1.6 mm (1/16 in) for heat seals and 1mm for ultrasonically produced seals.
	x		Seal width not as specified.
	x		Not sealed as specified.
	x		Required labeling or marking missing, incorrect, illegible, or that smudges.
	x		Presence of entrapped matter (for example, product residue) that reduces the effective closure seal to less than 1.6 mm (1/16 in) wide for heat seals and 1mm for ultrasonically produced seals.

[9] Any evidence of insect or rodent infestation shall be cause for rejection of the lot.

[10] A critical defect is a defect that judgment and experience indicate would result in hazardous or unsafe conditions for individuals using the item.

[11] A major defect is a defect, other than critical, that is likely to result in failure, or to reduce materially the usability of the unit of product for its intended purpose.

[12] A minor defect is a defect that is not likely to reduce materially the usability of the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

[13] Aberrations in pouch material or heat seals include: a) Major fold-over wrinkles or severe wrinkles, extending into heat seal area and reducing effective seal width to less than 1.6 mm (1/16 in) for heat seals or 1mm for ultrasonically produced seals; or b) Severe wrinkles in the body of the pouch along the inside edges of the heat seals.

Finished product and packaging defects[9]			
Defect Categories			Defect Description
Critical[10]	Major[11]	Minor[12]	
	x		Distance between inside edge of tear notch or serrations and inside edge of seal is less than 4.7625 mm (3/16 in) with minimum seal width of 2.5 mm (0.10 in).
		x	Tear notch or serrations missing
		x	Tear notch or serrations not located as specified
		x	Depth of tear notch or serrations not adequate to facilitate opening pouch
		x	Excess pouch material at edges exceeds 4.7625 mm (3/16 in)
	x		Pouch has foreign odor
	x		Any evidence of loss of headspace indicating potential leakage

PACKED PRODUCT REQUIREMENTS

6.1 PRIMARY PACKAGING

A. The product shall be packaged in hermetically sealed flexible packaging material. Seal integrity and overall pouch integrity shall be adequate to withstand rough handling typical of international distribution channels. The manufacturer shall state target seal width (not less than 1/10" or 2.5mm), and include a tear notch or serrated edge(s) to facilitate opening. Packaging dimensions shall be as indicated in contract requirements. The pouch material shall be capable of being fabricated into pouches, with material generally recognized as safe (GRAS) for use with food in accordance with 21 CFR Parts 170-199. Film should possess the following permeability characteristics:

Description	Measurement Unit	Method
O2 Permeability (23 ºC – 50% RH)	0.06 cc/100 ins²/day	ASTM D 3985
WV Permeability (38ºC – 90% RH)	0.05 gm/100 ins²day	ASTM F 372

6.2 SECONDARY PACKAGING

A. Shipping containers or cases have approximate dimensions of 8.68 in. height x 16 in. length x 13.25 in. width. Cases will be a regular slotted container constructed of a minimum 450 lb. burst test, double wall corrugated fiberboard. In order to fill at least 90% of the cubic capacity of a 20-foot intermodal container, appropriate stacking has to be made (i.e. Prepare pallets with four layers of cases for double pallet high stacking incontainers).

LABELING REQUIREMENTS

7.1 PRIMARY PACKAGING SHALL HAVE THE FOLLOWING MARKINGS:

Name of the product, Ingredient list, Net content, Code for supplier, Batch/lot number, Best used before, Storage instructions, and any other additional markings as per contractual agreement.

7.2 SECONDARY PACKAGING SHALL HAVE THE FOLLOWING MARKINGS:

Name of the product, and any additional markings as per contractual agreement.

7.3 TARGET GROUPS, COLOR CODING AND USE:

To distinguish from other RUF products (RUTF, RUSF, LNS-MQ), SF LNS will be distinguished using a mainly blue color.

RUF Type	Net weight (g)	Protein (%)	Color	Purpose
SF LNS	50	11-20	Blue	School feeding/snack
RUTF lipid based	92	13-16	Red	SAM treatment
RUSF/LNS LQ	100	11-16	Orange	MAM treatment
LNS MQ	50	11-16	Yellow	SAM/MAM prevention

Front and back of sachets should be of the particular color corresponded for its purpose and the specific hue for each color (e.g, Yellow Pantone 109, Orange Pantone 151, Red PMS 485).

SHELF LIFE, SHIPPING, AND STORAGE

The product shall have a shelf life of at least twenty four (24) months when stored up to 30°C at 75% relative humidity. Suppliers should provide accelerated shelf life studies and maintain retain samples at least for thirty (30) months. Food safety and quality guidelines must be implemented at distribution sites such as PVOs warehouses, hospitals, refugee camps, etc. In particular, there must be a well-defined pest control policy and continuous Good Hygiene Practices (GHP) training to personnel handling the product at the end of the food chain.

PREPARATION AND CONSUMPTION

SF LNS does not need to be prepared in any way prior to consumption, making it practical for use where cooking fuel and facilities are limiting constraints. Since SF LNS has high lipid content, and there might be a slight oil separation, gentle kneading of the pouches is recommended prior to opening.

Eyespot 7/16" long (11.1135mm x 6.35mm)
150mm (5.9055")
PD-MQ-PF05801607
Prod - Fab - Prod / Batch - Lot - Lote /
Best Before End:
A consommer de préférence avant fin :
Consumir preferiblemente antes del fin
Net weight / Poids net / Peso neto: 50 g
Consume within 24 hours of opening
A consommer dans les 24h suivant
l'ouverture Consumir en 24h despues de
SF-LNS
School Feeding Lipid-based Nutrient Supplement
Supplément nutritionnel à base lipidique Suplemento nutricional a base de lípido
For children 3 years of age and older
Para niños de 3 años de edad y mayores
Pour les enfants de 3 ans et plus
1 packet / sachet / sobre = 270 kcal
Eat one sachet per day
Manger un sachet par jour
Consumir un sobre por día
in addition to usual diet
directions for use
knead
Ingredients: Blend of non-hydrogenated vegetable oil (contains one or more of the following: soybean oil, canola oil, palm oil), sugar, defatted soy flour, peanuts, nonfat milk powder, whey powder, vitamin and mineral complex, stabilizer (fully hydrogenated vegetable fat). Allergens: peanuts, dairy products, soy. May contain traces of gluten. Contains no ingredients of animal origin besides dairy products. Packaged under protective atmosphere. Best stored below 30°C, in dry and hygienic conditions. Nutritional information and use: see technical data sheet. Not for sale or exchange.
Ingrédients : Mélange de matière grasse végétale non hydrogénée (peut contenir huile de soja, huile de colza, huile de palme), sucre, farine de soja dégraissé, arachides, poudre de lait écrémé, poudre de lactosérum, complexe minéral et vitaminique, stabilisant (matière grasse végétale totalement hydrogénée). Allergènes : arachides, produits laitiers, soja. Peut contenir des traces de gluten. Ne contient pas d'ingrédient d'origine animale, sauf ingrédients laitiers. Conditionné sous atmosphère protectrice. A stocker de préférence sous 30°C, au sec et dans des conditions d'hygiènes appropriées. Valeur nutritionnelle et utilisation : voir fiche technique. Interdit à la vente ou à l'échange.
Ingredientes: Combinación de materia grasa vegetal no hidrogenada (puede contener aceite de soya, aceite de colza, aceite de palma), azúcar, harina de soya desgrasada, cacahuetes, polvo de leche desnatada, suero de leche en polvo, complejo de minerales y vitaminas, estabilizante (materia grasa vegetal totalmente hidrogenada). Alérgenos: cacahuetes, productos lácteos, soya. Puede contener trazas de gluten. No contiene ingredientes de origen animal, salvo productos lácteos. Envasado bajo atmósfera protectora. Mejor almacenar en un lugar seco a menos de 30°C respetando las condiciones de higiene. Valor nutricional y uso: ver ficha técnica. Prohibida la venta e intercambio.
direction of flow
4.92126" (125 mm)
0.5"
1.226375"
2.70275"
1.226375"
.25"
secondary panel
principal panel
secondary panel