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GAZETTE NOTICE NO. 462 OF 2012

The Energy Regulation Act

the Energy Regulation Act

(Chapter 436 of the Laws of Zambia)

Notice of Intention to Issue Licences

MEMBERS OF THE GENERAL PUBLIC ARE HEREBY informed that the Energy Regulation Board (ERB) intends to issue Licences to the underlisted Applicants, thirty (30) days from the date of this notice in accordance with the provisions of the Energy Regulation Act Chapter 436 of the Laws of Zambia.

Any one objecting to the issuance of any of such Licences may do so by filing a written objection within thirty (30) days of the publication of this notice as stipulated under section 10 of the Energy Regulation Act as read with the Energy Regulation (Licensing) Regulations 1998 Statutory Instrument No. 2 of 1998. The written objection must be addressed to:

P.O. Box 37631 Lusaka B. A. SITALI, Energy Regulation Board

ID	Applicant Location	Address and Address and Undertakings	Directors , Residential Nationality other Energy	Directors Interest in	Type of Licence	Application Date
01.	Hashi Energy Limited	c/o Corpus Globe Corporate Services Limited, Stand No. 3065a, Suite B, Great East Road, P.O. Box 39371, Lusaka	 Ahmed Hashi Adan, 11th Floor, International House, Mama Ngina Street, P.O. Box 10795-00100 Nairobi, Kenya (Kenyan) Caroline Misodzi Johnstone, Farm No. 34A, S/D/15, Waterfalls, Great East Road, P.O. Box 32115, Lusaka (Zambian) Chanda Sichalwe Kasanda, Farm No. 17551/4/A, Buckley Estates, off Kafue Road, P.O. Box 32115 (Zambian) 	None	Importation of Lubricants (Initial)	2/05/2012
02.	Ogaz Zambia Limited	Plot No. 14117 Kafue Road, P.O. Box 33011 Lusaka	 Jasat Ismail Ibrahim, Plot No. 7396/105/D3, Bayuni, Road, Lusaka (Zambian) Jasat Ibrahim Mehmud, Plot No. 2, Omelo Mumba Road, Petauke, (Zambian) Jasat Yousouf, Plot No. 2 Omelo Mumba Road, Data (En Mark) 	None	Distribute, Import and Export Petroleum Products (LPG) (Initial	22/03/2012
03.	Indy Oil Zambia Limited	Plot No. 2, Chilekwa Mwamba Road,	 Margaret Mwanakatwe, Plot No. 4, Busuma Road, Kabulonga, Lusaka 	None	Importation of Lubricants (Initial)	16/03/2012 419

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D	Applicant	Address and Location	Directors , Residential Address and Nationality	Directors Interest in Undertakings	Type of Licence other Energy	Application Date
		off Lubu Road, Longacres, Lusaka P.O. Box 30031 Lusaka	 (Zambian) Alick Bongane Matutu, Plot No. 76, Eaton Terrace, Culross Road, Bryston 2021, South Africa (South African) Joseph Brown Mkandawire House No. 4, Lubu Road, Longacres, Lusaka (Zambian) 			
14.	Cosmic Motors Limited	Plot No. 25, Independence, Avenue, P.O. Box 22457, Kitwe	 Tarak Jayntilal Mehtu, Plot No. 12, Lushitu Drive, Parklands, Kitwe (Zambia) Jayntilal Mohanlal Mehta, Plot No. 12 Lushitu Drive, Parklands, Kitwe (Indian) Lisa Narendrakumar Kumar, Plot No. 12 Lushitu Drive, Parklands, Kitwe (American) Kirtilalaben Jayantilal Mehta, Plot No. 12 Lushitu Drive, Parklands, Kitwe (Indian) 	None	Importation of Lubricants (Renewal)	01/03/2012
)5.	Universal Oil Marketing Company Limited	Subdivision 493 Farm No. 401A St. Bonaventure Makeni, P.O. 30542, Lusaka	 Avinesh Pooran, Plot No. 242, Mclarty Road, Reservoir Hills, Durban South Africa (South African) Titus Miti, Flat No. Zimco, Kabulonga, Lusaka (Zambian) Sarah Phiri, House No. 60 Boli Street, Libala Stage 1, Lusaka (Zambian) Kaulule Illaki Siame, Plot 2032 Nyakaseya Road, Solwezi (Zambian) 	None	Importation of Lubricants (Initial)	16/05/2012
06.	Tiger Limited	2nd Floor, Finance House, President Avenue, Ndola P.O. Box 70238, Ndola	 Georgio Sabbadin, Plot No. 578, Kariba Road, Kansenshi, Ndola (Italian) Roberto Sabbadin, Plot No. Kariba Road, Kansenshi, Ndola (Italian) 	None	Transport of Petroleum Products (Renewal)	23/01/2012
17.	GS Trucking Limited	Plot No. 103/104 Chisokone Avenue, P.O. Box 70038, Ndola	 Ahmed Gahdean, House No. 7 Lupili, Northrise, Ndola (Zambian) Ahmed Sandra, House No. 7 Lupili, Northrise, Ndola (Zambian) 	None	Transportation of Petroleum Products (Renewal)	25/04/2012
)8.	Delta Energy Zambia	Plot No. 14116 Chipwenupwenu Road, off Kafue	 Daya Ismail, Plot No. 2 Omelo Mumba Road, Petauke (Zambian) 	None	Importation of Lubricants (Initial)	4/04/2012

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ID	Applicant	Address and Location	Directors , Residential Address and Nationality	Directors Interest in Undertakings	Type of Licence other Energy	Application Date		
	Limited	Road, P.O. Box 33011, Lusaka	 Tasat Mohammed Ibrahim, Plot No. 2 Omelo Mumba Road, Petauke (Zambian) Jasat Yousouf, Plot No. 2 Omelo Mumba Road (Zambian) 					
09.	Leytonstone Trading Limited	Plot No. 189/190 Cnr, Nkwazi/ Lumumba Road, P.O. Box 35460, Lusaka	 Seedat Farook, Plot No. 155 Great North Road, Emmasdale, Lusaka (Zambian) Seedat Sarifa, Plot No. 23 Busuma Road, Kabulonga, Lusaka (Zambian) 	None	Importation of Lubricants (Renewal)	23/04/2012		
10.	Centralina Investments Limited	Plot No. 3788 Chinyama Itawa, P.O. Box 72996, Ndola	 Farah Mohamed Ahmed, House No. 1053, Twapia Ndola (Zambian) Mohamed Sheh Amin, P.O. Box 73812, Ndola (South African) 	None	Retail of Petroleum Products (Initial) *Plot No. 4288 Kabwe Road, Ndola	4/06/2012		
11.	Jolt Transport Limited	Plot No. 5277, Buyantanshi. 5277, Buyantanshi Road, Industrial Area, P.O. Box 36096, Ndola	 Joyce Phiri Tembo, Plot No. 5277, Buyantanshi Road, Industrial Area, Ndola (Zambian) Joyson Tembo, Plot No. 5817/M/Subdivision A, Lusaka West, Lusaka (Zambian) 	None	Transportation of Petroleum Products (Renewal)	16/04/2012		
12.	Khalif Motors (Z) Limited	Plot No. 7718 Daghamesjoeld Drive, Itawa P.O. Box 73770, Ndola	 Abdirahman Abdullahi Khalif, Plot No. 718 Itawa Daghamsjoeld Drive, Ndola (Zambian) Hassan Abdullahi Khalif, Plot No. 718 Itawa, Daghamsjoeld Drive, Ndola (Zambian) Abdihodan Abdullahi Khalif, 	, None	Transportation of Petroleum Products (Renewal)	7/06/2012		
			 Flat 78 ZNPF Itawa Flats, Ndola (Zambian) 4. Ahmed Abdullahi Khalif, Plot No. 9018 Lake Road, Woodlands, Lusaka (Canadian) 					
			 Said Abdullahi Khalif, House No. 5851 Airport Road, Ndola (Canadian) 					
13.	Samfuel Limited	2nd Floor, Finance House, President Avenue, P.O. Box 70238, Ndola	 John Stephanos Samaras, Plot No. 108, Kabelenga Road, Kansenshi, Ndola (Zambian) Joan Sharon Samaras, Plot 108, Kabelenga Road, Kansenshi Ndola (Zambian) 	None	Importation of Lubricants (Renewal)	29/05/2012		
14.	SGC Investments Limited	Plot No. 5217 Kabwe Road, P.O. Box 230135, Ndola	 Shinganya Costa George, Plot No. 67/12 Kaunda Square Stage 1, Lusaka (Zambian) 	None	Retail of Petroleum Products (Additional) *Plot No. 3279	10/01/2012		

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ID Applicant		Address and Location	 Directors, Residential Address and Nationality 2. Phiri Daniel, House No. 12 Lubuto West, Ndola (Zambian) 3. Shinganya David, House No. 578F Mukuni Road, Ndola (Tanzanian) 4. Shinganya George, House No. 	Directors Interest in Undertakings	Type of Licence other Energy Chatulinga Road, Mufulira	Application Date	
			 578F Mukuni Road, Lusaka (Tanzanian) 5. Shinganya Triza, House No. 578F Mukuni Road, Ndola (Tanzanian) 				
15.	Mt Meru Petroleum Zambia Limited	Plot No. 20429C Nangwenya Road off Addis Ababa Drive, Mass Media, P.O. Box 34360, Lusaka	 Kumar Mittal Arvind, Plot No. 52, Themi Hill Arusha, Tanzania (Indian) Mittal Atul, Plot No. 52 Themi Hill, Arusha, Tanzania (Tanzanian) Shah Himanshu, Plot No. 20429C, Mass Media Lusaka (Indian) 	None	Retail of Petroleum Products (Additional) *Plot No. 3621, Great North Road, Choma	2/03/2012	
			 Sheth Manishkumar Hardik, Plot No. 10826 Chilubula Close, Olympia Park, Lusaka (Indian) Chand Tarsem, Plot No. 52 Themi Hill Arusha Tanzania 				
16.	Keren Motors Limited	Plot No. 6920, Mungwi Road, P.O. Box 31897 Lusaka	 (Indian) 1. Kibrom Berthane, House No. 35. Ngumbo Road, Longacres, Lusaka (Ethiopian) 	None	Transportion of Petroleum Products (Renewal)	2/12/2011	
			 Makumba Jane, House No. 354, Ngumbo Road, Longacres, Lusaka (Zambian) 				
17.	Tholex Enterprise	Plot No. 2324/M New Kasama, Leopards Hill Road, P.O. Box 37873, Lusaka	 Maybin Thole, Plot No. 2324/M, New Kasama Lusaka (Zambian) 	None	Transportation of Petroleum Products (Renewal)	29/05/2012	
18.	Savenda Management Services Limited	Plot No. 1534, 36 Milima Road Woodlands, P.O. 33519, Lusaka	 Clever Mpoha, 1.04 BOZ Flats, Nasser Road, Fairview P.O. Box 33519, Lusaka (Zambian) Esther Chanda Mpoha, 1.04 BOZ Flats, Nasser Road, Fairview, P.O. Box 33519, Lusaka (Zambian) 	None	Distribute, Import and Import of Petroleum Products (Butane) (Initial)	11/05/2012	
19.	Kengur Import and Export Limited	Plot No. 20, Chikola Road, Itawa Township, P.O. Box 73453, Ndola	 Dayo Aden, Plot No. 20 Chikola Road, Itawa, Lusaka (Kenyan) Mulenga Christopher, Plot No. 1115 Kamwala Site and Service, Lusaka (Zambian) 	None	Distribute, Import and Export Petroleum Products (Butane) (Initial)	25/04/2012 n	

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ID	Applicant	Address and Location	Directors , Residential Address and Nationality	Directors Interest in Undertakings	Type of Licence other Energy	Application Date
			 Chanda Gerry Augustus, Plot No. 1751/100, Buckley Estates, Lusaka (Zambian) 			
			 Kaira Patrick, Plot No. 9 Bimbe Road, Chaisa Township, Lusaka (Zambian) 			
			 Hassain Sharif, Plot No. 9 Bimbe Road, Chaisa Township, Lusaka (Somalian) 			
20.	Efedas Investments Limited	Plot No. D64 New Kansuswa, P.O. Box 40452, Mufulira	 Aidan Simbeye, D64, New Kansuswa, Mufulira (Zambian) Benjamin Nyirongo, Plot No. 151, Gyne Sikmbe Road, Nakonde (Zambian) 	None	Transportation of Petroleum Products (Initial)	07/05/2012
			 Damas Simbeye, House No. V8 New Kansuswa, Mufulira (Zambian) 			
21.	Shambelenga Investments Limited	Plot No. 8020, Masala, P.O. Box 70988, Ndola	 Darius Chishimba, Plot No. 2055 Old Regiment Bwanamkubwa, Ndola (Zambian) Felix Mulenga, 8020 Chinese Complexm Masala, Ndola (Zambian) 	None	Transportation of Petroleum Products (Initial)	12/04/2012
22.	Bicolandia Limited	Plot No. 3195 Kachai Road, Heavy Industrial Area, P.O. Box 260418, Kitwe	 Allan Armengol, 162 Buteko Drive, Kalulushi (Filipino) Filma Armengol, 162 Buteko Drive, Kalulushi (Filipino) Ron Armengol, 1421 Chikuni Road (Filipino) 	None	Transporation of Petroleum Products (Initial)	01/03/2012
			 Ronnel Armengol, 9142A Kasiya Road (Filipino) Ronniebelle Armengol, 162 Buteko Drive (Filipino) 			
23.	Oryx Oil Zambia Limited	Plot No. 5262, Mukwa Road, P.O. Box 38638 Lusaka	 Webster Ndonde, Plot No. 10445/S/D 'C' Great East Munali, Lusaka (Zambian) Vaughan Hilton Gibson, Plot No. 307 Cha Cha Cha Road, Oster Bay, Dar-Es-Salaam (South African) 	None	Importation of Lubricants (Renewal)	18/11/2011
			 Thierry Genthialon, Rue de la Colour 3, 74940 Annecy-le- Viex France (French) Brian Chanda, Plot No. 35 Vubu Road, Emmasdale, 			
24.	Extrenergy Oil Zambia Limited	Plot No. 4800 Great East Road, P.O. Box 37214, Lusaka	Lusaka (Zambian) 1. Chama Chilomo, Plot 239 Chamba Valley, Lusaka (Zambian) 2. Pamela Chilomo, Plot No. 239, Chamba Valley (Zambian) 3. Brian Pakati, Plot No. 2562 Tito Road, Phydesnaft	Nonc	Importation of Lubricants (Initial)	7/06/2012

Lusaka (Zambian)

GAZETTE NOTICE NO. 463 OF 2012

The Standards Act

(Cap. 416)

Declaration of Compulsory Standards

PURSUANT to section 9 of the Standards Act, notice is hereby given that at the expiry of two months from the date of this notice, the Zambia Bureau of Standards intends to recommend to the Minister under section 7(1) of the Standards Act, Cap 416 that the Zambian standard appearing in the Schedule hereto be declared compulsory standard for Zambia.

The purpose of making this recommendation is to allow Zambia Bureau of Standards to compel manufacturers, traders, importers and service industries dealing with food stuffs to comply with general principles of food hygiene.

Any person objecting to the substance of the standard should lodge written objections to the Director, Zambia Bureau of Standards, P.O. Box 50259, Lusaka within two months from the date of publication of this notice in the Government Gazette.

LUSAKA

6th June, 2012

ZAMBIAN STANDARD

GENERAL PRINCIPALS OF FOOD HYGIENE - code of practice

SECTION A - SCOPE AND DEFINITION

SCORE

The food chain

This document follows the food chain from primary production to the final consumer, setting out the necessary hygiene conditions for producing food that is safe and suitable for consumption. The document provides a base-line structure for other, more specific, codes applicable to particular sectors.

DEFINITIONS

For the purpose of this Code, the following expressions have the meaning stated:

Cleaning - the removal of soil, food residue, dirt, grease or other objectionable matter.

Contaminant - any biological or chemical agent, foreign matter, or other substances not intentionally added to food, which may compromise food safety or suitability.

Contamination - the introduction or occurrence of a contaminant in food or food environment.

Disinfection - the reduction, by means of chemical agents and/or physical methods, of the number of micro-organisms in the environment, to a level that does not compromise food safety or suitability.

Establishment - any building or area in which food is handled and the surroundings under the control of the same management.

Food hygiene - all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain. Hazard - a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

HACCP - a system that identifies, evaluates, and controls hazards, which are significant for food safety.

Food handler - any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements.

Food safety - assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use.

Food suitability - assurance that food is acceptable for human consumption according to its intended use.

Primary production - those steps in the food chain up to and including, for example, harvesting, slaughter, milking, fishing,

SECTION B - PRIMARY PRODUCTION

Environmental Hygiene

Potential sources of contamination from the environment should be considered. In particular, primary food production should not be carried on in areas where the presence of potentially harmful substances would lead to an unacceptable level of such substances in food. Hygienic Production of Food Sources

The potential effects of primary production activities on the safety and suitability of food should be considered at all times. In particular, this includes identifying any specific points in such activities where a high probability of contamination may exist and taking specific measures to

Producers should as far as practicable implement measures to:

- control contamination from air, soil, water, feedstuffs, fertilizers (including natural fertilizers), pesticides, veterinary drugs or any other
- control plant and animal health so that it does not pose a threat to human health through food consumption, or adversely affect the suitability of the product; andprotect food sources from faecal and other contamination.

In particular, care should be taken to manage wastes, and store harmful substances appropriately. On-farm programmes which achieve specific food safety goals are becoming an important part of primary production and should be encouraged.

Handling, Storage and Transport

Procedures should be in place to:

sort food and food ingredients to segregate material which is evidently unfit for human consumption;

protect food and food ingredients from contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during handling, storage and transport. objectionable substances during handling, storage through appropriate measures which may Care should be taken to prevent, so far as reasonably practicable, deterioration and spoilage through appropriate measures which may

N. SING'AMBWA Acting Director Zambia Bureau of Standard

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Cleaning, Maintenance and Personnel Hygiene at Primary Production

Appropriate facilities and procedures should be in place to ensure that: any necessary cleaning and maintenance is carried out effectively; and an appropriate degree of personal hygiene is maintained. SECTION C - ESTABLISHMENT: DESIGN AND FACILITIES

LOCATION

Establishments

Potential sources of contamination need to be considered when deciding where to locate food establishments, as well as the effectiveness of any reasonable measures that might be taken to protect food. Establishments should not be located anywhere, after considering such protective measures, it is clear that there will remain a threat to food safety or suitability. In particular, establishments should normally be located away

environmentally polluted areas and industrial activities which pose a serious threat of contaminating food;

areas subject to flooding unless sufficient safeguards are provided;

areas prone to infestations of pests;

areas where wastes, either solid or liquid, cannot be removed effectively.

Equipment

Equipment should be located so that it:

permits adequate maintenance and cleaning;

functions in accordance with its intended use; and

facilitates good hygiene practices, including monitoring.

PREMISES AND ROOMS

Design and Layout

Where appropriate, the internal design and layout of food establishments should permit good food hygiene practices, including protection against cross-contamination between and during operations by foodstuffs.

Internal structures and fittings

Structures within food establishments should be soundly built of durable materials and be easy to maintain, clean and where appropriate, able to be disinfected. In particular the following specific conditions should be satisfied where necessary to protect the safety and suitability of food; the surfaces of walls, partitions and floors should be made of impervious materials with no toxic effect in intended use;

walls and partitions should have a smooth surface up to a height appropriate to the operation;

floors should be constructed to allow adequate drainage and cleaning;

ceilings and overhead fixtures should be constructed and finished to minimize the build up of dirt and condensation, and the shedding of particles;

windows should be easy to clean, be constructed to minimize the build up of dirt and where necessary, be fitted with removable and cleanable insect-proof screens. Where necessary, windows should be fixed.

doors should have smooth, non-absorbent surfaces, and be easy to clean and, where necessary, disinfect;

working surfaces that come into direct contact with food should be in sound condition, durable and easy to clean, maintain and disinfect. They should be made of smooth, non-absorbent materials, and inert to the food, to detergents and disinfectants under normal operating conditions.

Temporary/mobile premises and vending machines

Premises and structures covered here include market stalls, mobile sales and street vending vehicles, temporary premises in which food is handled such as tents and marquees.

Such premises and structures should be sited, designed and constructed to avoid, as far as reasonably practicable, contaminating food and harbouring pests.

In applying these specific conditions and requirements, any food hygiene hazards associated with such facilities should be adequately controlled to ensure the safety and suitability of food.

EQUIPMENT

General

Equipment and containers (other than once-only use containers and packaging) coming into contact with food, should be designed and Equipment and containers (other than one only use enclanded and plantaging) contain and containers (other than one designed and constructed to ensure that, where necessary, they can be adequately cleaned, disinfected and maintained to avoid the contamination of food. constructed to ensure that, where necessary, and can be deequally offered in intended use. Where necessary, equipment should be made of materials with no toxic effect in intended use. Where necessary, equipment should be durable and Equipment and containers should be made or maintenance, cleaning, disinfection, monitoring and, for example, to facilitate inspection for pests.

Food control and monitoring equipment

In addition to the general requirements in paragraph 4.3.1. equipment used to cook, heat treat, cool, store or freeze food should be designed to In addition to the general requirements in paragraph as it equipment used to cook, heat treat, cook, siore or freeze tood should be designed to achieve the required food temperatures as rapidly as necessary in the interests of food safety and suitability, and maintain them effectively. Such equipment should also be designed to allow temperatures to be monitored and controlled. Where necessary, such equipment should have equipment should also be designed to another humidity, air-flow and any other characteristic likely to have a detrimental effect on the safety or effective means of controlling and monitoring humidity, air-flow and any other characteristic likely to have a detrimental effect on the safety or suitability of food. These requirements are intended to ensure that:

where appropriate, critical limits established in HACCP-based plans can be monitored; and

where appropriate, entrear initial electronic to food safety and suitability can be rapidly achieved and maintained.

Containers for waste and inedible substances

Containers for waste and metalous substances and inedible or dangerous substances, should be specifically identifiable suitably constructed and, where Containers for wasie, by products and include a data and the second of specification of specification of the second and, where appropriate, made of impervious material. Containers used to hold dangerous substances should be identified and, where appropriate, be lockable to prevent malicious or accidental contamination of food.

FACILITIES

Water supply

An adequate supply of potable water with appropriate facilities for its storage, distribution and temperature control, should be available whenever necessary to ensure the safety and suitability of food.

Non-potable water systems shall be identified and shall not connect with, or allow reflux into, potable water systems.

Drainage and waste disposal

Adequate drainage and waste disposal systems and facilities should be provided. They should be designed and constructed so that the risk of naminating fact and waste disposal systems and facilities should be provided. contaminating food or the potable water supply is avoided.

Cleaning Adequate facilities, suitably designated, should be provided for cleaning food, utensils and equipment. Such facilities should have an adequate supply of hot and cold potable water where appropriate.

Personnel hygiene facilities and toilets

Personnel hygiene facilities should be available to ensure that an appropriate degree of personal hygiene can be maintained and to avoid

adequate means of hygienically washing and drying hands, including wash basins and a supply of hot and cold (or suitably temperature contaminating food. Where appropriate, facilities should include: controlled) water:

lavatories of appropriate hygienic design; and

adequate changing facilities for personnel.

Such facilities should be suitably located and designated.

Temperature control

Depending on the nature of the food operations undertaken, adequate facilities should be available for heating, cooling, cooking, refrigerating and freezing food, for storing refrigerated or frozen foods, monitoring food temperatures, and when necessary, controlling ambient temperatures to ensure the safety and suitability of food.

Air quality and ventilation

Adequate means of natural or mechanical ventilation should be provided, in particular to:

minimize air-borne contamination of food, for example, from aerosols and condensation droplets;

control ambient temperatures;

control odours which might affect the suitability of food: and

control humidity, where necessary, to ensure the safety and suitability of food.

Ventilation systems should be designed and constyructed sothat air air does not flow from contaminated areas to clean areas and where necessary, they can be adequately maintained and cleaned.

Lighting

Adequate natural or artificial lighting should be provided to enable the undertaking to operate in a hygicnic manner. Where necessary, lighting should not be such that the resulting colour is misleading. The intensity should be adequate to the nature of the operation. Lighting fixtures should, where appropriate, be protected to ensure that food is not contaminated by breakages. Storage

Where necessary, adequate facilities for the storage of food, ingredients and non-food chemicals (e.g. cleaning materials, lubricants, fuels) should be provided.

Where appropriate, food storage facilities should be designed and constructed to:

permit adequate maintenance and cleaning:

avoid pest access and harbourage:

enable food to be effectively protected from contamination during storage;

where necessary, provide an environment which minimizes the deterioration of food (e.g. by temperature and humidity control).

The type of storage facilities required will depend on the nature of the food. Where necessary, separate, secure storage facilities for cleaning materials and hazardous substances should be provided.

SECTION D - CONTROL OF OPERATION

Control of Food Hazards

Food business operators should control food hazards through the use of systems such as HACCP. They should:

identify any steps in their operations which are critical to the safety of food;

implement effective control procedures at those steps;

monitor control procedures to ensure their continuing effectiveness; and

review control procedures periodically, and whenever the operations change.

These systems should be applied throughout the food chain to control food hygiene throughout the shelf-life of the product through proper product and process design.

Control procedures may be simple, such as checking stock rotation calibrating equipment, or correctly loading refrigerated display units. In some cases a system based on expert advice, and involving documentation, may be appropriate.

KEY ASPECTS OF HYGIENE CONTROL SYSTEMS

Time and temperature control

Inadequate food temperature control is one of the most common causes of food borne illness or food spoilage. Such controls include time and temperature of cooking, cooling, processing and storage. Systems should be in place to ensure that temperature is controlled effectively where Temperature control systems should take into account:

the nature of the food, e.g. its water activity, pH, and likely initial level and types of micro-organisms;

the method of packaging processing; and

how the product is intended to be used, e.g. further cooking/processing or ready-to-eat.

Such systems should also specify tolerable limits for time and temperature variations.

Temperature recording devices should be checked at regular intervals and tested for accuracy. Specific process steps

Other steps which contribute to food hygiene may include, for example:

chilling

thermal processing irradiation drying

chemical preservation

vacuum or modified atmospheric packaging

Microbiological and other specifications

Management systems described in paragraph 5.1 offer an effective way of ensuring the safety and suitability of food. Where microbiological, chemical or physical specifications are used in any food control system, such specifications should be based on sound scientific principles and state, where appropriate, monitoring procedures, analytical methods and action limits. Microbiological cross-contamination

Pathogens can be transferred from one food to another, either by direct contact or by food handlers, contact surfaces or the air. Raw, unprocessed food should be effectively separated, either physically or by time, from ready-to-eat foods, with effective intermediate cleaning and where appropriate disinfection.

Access to processing areas may need to be restricted or controlled. Where risks are particularly high, access to processing areas should be only via a changing facility. Personnel may need to be required to put on clean protective clothing including footwear and wash their hands before

Surfaces, utensils, equipment, fixtures and fittings should be thoroughly cleaned and where necessary disinfected after raw food, particularly meat and poultry, has been handled or processed. Physical and chemical contamination

Systems should be in place to prevent contamination of foods by foreign bodies such as glass or metal shards from machinery, dust, harmful fumes and unwanted chemicals. In manufacturing and processing, suitable detection or screening devices should be used where necessary.

Incoming Material Requirements

No raw material or ingredient should be accepted by an establishment if it is known to contain parasites, undesirable micro-organisms, pesticides, veterinary drugs or toxic, decomposed or extraneous substances which would not be reduced to an acceptable level by normal sorting and/or processing. Where appropriate, specifications for raw materials should be identified and applied.

Raw materials or ingredients should, where appropriate, be inspected and sorted before processing. Where necessary, laboratory tests should be made to establish fitness for use. Only sound, suitable raw materials or ingredients should be used.

Stocks of raw materials and ingredients should be subject to effective stock rotation.

Packaging

Packaging design and materials should provide adequate protection for products to minimize contamination, prevent damage, and accommodate proper labelling. Packaging materials or gases where used must be non-toxic and not pose a threat to the safety and suitability of food under the specified conditions of storage and use. Where appropriate, reusable packaging should be suitably durable, easy to clean and, where necessary, disinfect.

WATER

In contact with food

Only potable water, should be used in food handling and processing, with the following exceptions:

for steam production, fire control and other similar purposes not connected with food; and

in certain food processes, e.g. chilling, and in food handling areas, provided this does not constitute a hazard to the safety and suitability of food (e.g. the use of clean sea water). Water re-circulated for reuse should be treated and maintained in such a condition that no risk to the safety and suitability of food results from

its use. The treatment process should be effectively monitored. Re-circulated water which has received no further treatment and water recovered from processing of food by evaporation or drying may be used, provided its use does not constitute a risk to the safety and suitability of food. As an ingredient

Potable water should be used wherever necessary to avoid food contamination.

Ice and steam

e and steam lee should be made from water that complies with section 4.4.1. Ice and steam should be produced, handled and stored to protect them from contamination. Steam used in direct contact with food or food contact surfaces should not constitute a threat to the safety and suitability of food. Management and Supervision

The type of control and supervision needed will depend on the size of the business, the nature of its activities and the types of food involved. Managers and supervisors should have enough knowledge of food hygiene principles and practices to be able to judge potential risks, take appropriate preventive and corrective action, and ensure that effective monitoring and supervision takes place.

Documentation and Records Where necessary, appropriate records of processing, production and distribution should be kept and retained for a period that exceeds the shelf-life of the product. Documentation can enhance the credibility and effectiveness of the food safety control system.

Managers should ensure effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any **Recall Procedures** implicated lot of the finished food from the market. Where a product has been withdrawn because of an immediate health hazard, other products implicated tot of the missice root from the market, where a postered a similar hazard to public health, should be evaluated for safety and may which are produced under similar conditions, and which may present a similar hazard to public health, should be evaluated for safety and may need to be withdrawn. The need for public warnings should be considered.

Recalled products should be held under supervision until they are destroyed, used for purposes other than human consumption, determined to be safe for human consumption, or reprocessed in a manner to ensure their safety.

SECTION E - ESTABLISHMENT: MAINTENANCE AND SANITATION MAINTENANCE AND CLEANING

Establishments and equipment should be kept in an appropriate state of repair and condition to:

facilitate all sanitation procedures;

function as intended, particularly at critical steps (see paragraph 5.1);

prevent contamination of food, e.g. from metal shards, flaking plaster, debris and chemicals. prevent contamination of rood, e.g. and dirt which may be a source of contamination. The necessary cleaning methods and materials will Cleaning should remove food residues and dirt which may be a source of contamination. The necessary cleaning methods and materials will depend on the nature of the food business. Disinfection may be necessary after cleaning.

pend on the nature of the food dustriess. Distinction hay be necessary after eleming. Cleaning chemicals should be handled and used carefully and in accordance with manufacturers' instructions and stored, where necessary, separated from food, in clearly identified containers to avoid the risk of contaminating food.

eaning procedures and memous Cleaning can be carried out by the separate or the combined use of physical methods, such as heat, scrubbing, turbulent flow, vacuum cleaning Cleaning can be carried out by the separate and chemical methods using detergents alkalis or acids Cleaning procedures and methods or other methods that avoid the use of water, and chemical methods using detergents alkalis or acids.

Cleaning procedures will involve, where appropriate; Cleaning procedures with involves whether applying a detergent solution to loosen soil and bacterial film and hold them in solution or suspension; removing gross debris from surface applying a detergent solution to loosen soil and bacterial film and hold them in solution or suspension;

rinsing with water which complies with section 4, to remove loosened soil and residues of detergent; dry cleaning or other appropriate methods for removing and collecting residues and debris; and Where necessary, disinfection

Cleaning Programmes

Cleaning and disinfection programmes should ensure that all parts of the establishment are appropriately clean, and should include the cleaning cleaning equipment of cleaning equipment.

Cleaning and disinfection programmes should be continually and effectively monitored for their suitability and effectiveness and where necessary, documented.

Where written cleaning programmes are used, they should specify:

areas, items of equipment and utensils to be cleaned;

responsibility for particular tasks;

method and frequency of cleaning; and

monitoring arrangements. Where appropriate, programmes should be drawn up in consultation with relevant specialist expert advisors.

PEST CONTROL SYSTEMS

General

Pests pose a major threat to the safety and suitability of food. Pest infestations can occur where there are breeding sites and a supply of food. Good hygiene practices should be employed to avoid creating an environment conducive to pests. Good sanitation, inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides.

Preventing access

Buildings should be kept in good repair and condition to prevent pest access and to eliminate potential breeding sites. Holes, drains and other places where pests are likely to gain access should be kept sealed. Wire mesh screens, for example on open windows, doors and ventilators, will reduce the mesh screens. reduce the problem of pest entry. Animals should, wherever possible, be excluded from the grounds of factories and food processing plants. Harbourage and infestation

The availability of food and water encourages pest harbourage and infestation. Potential food sources should be stored in pest-proof containers and/or stacked above the ground and away from walls. Areas both inside and outside food premises should be kept clean. Where appropriate, refuse should be stored in covered, pest-proof containers.

Monitoring and detection

Establishments and surrounding areas should be regularly examined for evidence of infestation.

Eradication

Pest infestations should be dealt with immediately and without adversely affecting food safety or suitability. Treatment with chemical, physical or biological agents should be carried out without posing a thread to the safety or suitability of food.

Waste Management

Suitable provision must be made for the removal and storage of waste. Waste must not be allowed to accumulate in food handling, food storage, and other working areas and the adjoining environment except so far as it is unavoidable for the proper functioning of the business.

Waste stores must be kept appropriately clean.

Monitoring Effectiveness

Sanitation systems should be monitored for effectiveness, periodically verified by means such as audit pre-operational inspections, or, where appropriate, microbiological sampling of environment and food contact surfaces and regularly reviewed and adapted to reflect changed circumstances.

SECTION F - ESTABLISHMENT: PERSONAL HYGIENE

Health Status

People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, should not be allowed to enter any food handling area if there is a likelihood of their contaminating food. Any person so affected should immediately report illness or symptoms of illness to the management.

Medical examination of a food handler should be carried out if clinically or epidemiologically indicated.

Illness and Injuries

Conditions which should be reported to management so that any need for medical examination and/or possible exclusion from food handling. can beconsidered include:

jaundice diarrhoea vomiting sore throat with fever visibly infected skin lesions (boils, cuts, etc.) discharges from the ear, eye or nose

Personal Cleanliness

Food handlers should maintain a high degree of personal cleanliness and, where appropriate, wear suitable protective clothing, head covering. and footwear, Cuts and wounds, where personnel are permitted to continue working, should be covered by suitable waterproof dressings. Personnel should always wash their hands when personal cleanliness may affect food safety, for example:

at the start of food handling activities;

immediately after using the toilet; and

after handling raw food or any contaminated material, where this could result in contamination of other food items; they should avoid Personal Behaviour

People engaged in food handling activities should refrain from behaviour which could result in contamination of food for example:

spitting;

chewing or eating;

sneezing or coughing over unprotected food.

sneezing or coughing over unprotected root. Personal effects such as jewellery, watches, pins or other items should not be worn or brought into food handling area if they pose a threat to the safety and suitability of food. Visitors

sitors Visitors to food manufacturing, processing or handling areas should, where appropriate, wear protective clothing and adhere to the other personal hygiene provisions in this section.

SECTION G - TRANSPORTATION

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General

Food must be adequately protected during transport. The type of conveyances or containers required depends on the nature of the food and the conditions under which it has to be transported. Requirements

- Where necessary, conveyances and bulk containers should be designed and constructed so that they: do not contaminate foods or packaging;

 - can be effectively cleaned and, where necessary, disinfected;

permit effective separation of different foods or foods from non-food items where necessary during transport;

- provide effective protection from contamination, including dust and fumes;
- can effectively maintain the temperature, humidity, atmosphere and other conditions necessary to protect food from harmful or undesirable microbial growth and deterioration likely to render it unsuitable for consumption; and
- allow any necessary temperature, humidity and other conditions to be checked.

Use and Maintenance

Conveyances and containers for transporting food should be kept in an appropriate state of cleanliness, repair and condition. Where the same conveyance or container is used for transporting different foods, or non-foods, effective cleaning and, where necessary, disinfection should take place between loads.

Where appropriate, particularly in bulk transport, containers and conveyances should be designated and marked for food use only and be used only for that purpose.

SECTION H - PRODUCT INFORMATION AND CONSUMER AWARENESS

Lot Identification

Lot identification is essential in product recall and also helps effective stock rotation. Each container of food should be permanently marked to identify the producer and the lot.

Product Information

All food products should be accompanied by or bear adequate information to enable the next person in the food chain to handle, display, store and prepare and use the product safely and correctly.

Labelling

Prepackaged foods should be labelled with clear instructions to enable the next person in the food chain to handle, display, store and use the product safely.

Consumer Education

Health education programmes should cover general good hygiene. Such programmes should enable consumers to understand the importance of any product information and to follow any instructions accompanying products, and make informed choices. In particular consumers should be informed of the relationship between time/temperature control and food borne illness.

SECTION I - TRAINING

Awareness and Responsibilities

Food hygiene training is fundamentally important. All personnel should be aware of their role and responsibility in protecting food from contamination or deterioration. Food handlers should have the necessary knowledge and skills to enable them to handle food hygienically. Those who handle strong cleaning chemicals or other potentially hazardous chemicals should be instructed in safe handling techniques. Training Programmes

Factors to take into account in assessing the level of training required include:

the nature of the food, in particular its ability to sustain growth of pathogenic or spoilage micro-organisms;

the manner in which the food is handled and packed, including the probability of contamination;

- the extent and nature of processing or further preparation before final consumption;
- the conditions under which the food will be stored; and
- the expected length of time before consumption.

Instruction and Supervision

Periodic assessments of the effectiveness of training and instruction programmes should be made, as well as routine supervision and checks to ensure that procedures are being carried out effectively.

Managers and supervisors of food processes should have the necessary knowledge of food hygiene principles and practices to be able to judge potential risks and take the necessary action to remedy deficiencies.

Refresher Training

Training programmes should be routinely reviewed and updated where necessary. Systems should be in place to cusure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food.

ANNEX A - OBJECTIVES FOR EACH SECTION

(Informative)

SECTION A - PRINCIPLES OF FOOD HYGIENE

The general principles of food hygiene: Ine general principles of food hygiene, Identify the essential principles of food hygiene applicable throughout the food chain (including primary production through to final Identify the essential principles of food hygiene applicable throughout the for human computation. consumer), to achieve the goal of ensuring that food is safe and suitable for human consumption;

Recommend a HACCP-based approach as a means to enhance food safety;

Indicate how to implement those principles; and indicate now to implement those principles and Provide guidance for specific codes which may be needed for - sectors of the food chain, processes or commodities to amplify the hygiene requirements specific to those areas.

SECTION B - PRIMARY PRODUCTION

Primary production should be managed in a way that ensures that food is safe and suitable for its intended use. Where necessary, this will

include

Avoiding the use of areas where the environment poses a threat to the safety of food; Avoiding the use of areas where the distribution produced under appropriately by tood, Controlling contaminants, pests and diseases of animals and plants in such a way as not to pose threat to food safety;

Controlling containmants, pests and discusse of annual and plants in such a way as not to pose threa Adopting practices and measures to ensure food is produced under appropriately hygienic conditions.

Rationale:

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Lam	DIA	Gazence	

To reduce the likelihood of introducing a hazard which may adversely affect the safety of food, or its suitability for consumption, at later stages of the food choice stages of the food chain.

.....

SECTION C- ESTABLISHMENT: DESIGN AND FACILITIES

Depending on the nature of the operations, and the risks associated with them, premises, equipment and facilities should be located, signed and constructed to experiment the transmission of the operations and the risks associated with them, premises, equipment and facilities should be located, designed and constructed to ensure that:

Contamination is minimized;

Design and layout permit appropriate maintenance, cleaning and disinfections and minimize air-borne contamination; Surfaces and materials

Surfaces and materials, in particular those in contact with food, are non-toxic in intended use and, where necessary, suitably durable and eacy to maintain a distribution of the second durable, and easy to maintain and clean;

Where appropriate, suitable facilities are available for temperature, humidity and other controls; and

There is effective protection against pest access and harbourage.

Rationale

Attention to good hygienic design and construction appropriate location, and the provision of adequate facilities, is necessary to enable hazards to be effectively controlled.

SECTION D - CONTROL OF OPERATION

To produce food which is safe and suitable for human consumption by:

Formulating design requirements with respect to raw materials, composition, processing, distribution and consumer use to be met in the manufacture and handling of specific food items: and

Designing, implementing, monitoring and reviewing effective control systems.

Rationale.

To reduce the risk of unsafe food by taking preventive measures to assure the safety and suitability of food at an appropriate stage in the operation by controlling food hazards.

SECTION E - ESTABLISHMENT: MAINTENANCE AND SANITATION

To establish effective systems to:

Ensure adequate and appropriate maintenance and cleaning:

Control pests;

Manage waste; and

Monitor effectiveness of maintenance and sanitation procedures.

Rationale

To facilitate the continuing effective control of food hazards, pests and other agents likely to contaminate food.

SECTION F - ESTABLISHMENT: PERSONAL HYGIENE

To ensure that those who come directly or indirectly into contact with food are not likely to contaminate food by:

Maintaining an appropriate degree of personal cleanliness;

Behaving and operating in an appropriate manner.

Rational.

People who do not maintain an appropriate degree of personal cleanliness, who have certain illnesses or conditions or who behave inappropriately, can contaminate food and transmit illness to consumers.

SECTION G- TRANSPORTATION

Measures should be taken where necessary to:

Protect food from potential sources of contamination;

Protect food form damage likely to render the food unsuitable for consumption; and

Provide an environment which effectively controls the growth of pathogenic or spoilage micro-organisms and the production of toxins in food.

Rationale:

Food may become contaminated, or may not reach its destination in a suitable condition for consumption, unless effective control measures are taken during transport, even where adequate hygiene control measures have been taken earlier in the food chain. SECTION H-PRODUCT INFOMATION AND CONSUMER AWARENESS

Products should bear appropriate information to ensure that:

Adequate and accessible information is available to the next person in the food chain to enable them to handle, store, process,

The lot or batch can be ensily identified and recalled if necessary;

Consumers should have enough knowledge of food hygiene to enable them to:

Understand the importance of product information

Make informed choices appropriate to the individual; and

Make informed choices appropriate to the metric and pathogens by storing, preparing and using it correctly. Information for industry or trade users should be clearly distinguishable from consumer information, particularly on food labels.

itionale: Insufficient product information, and/or inadequate knowledge of general food hygiene, can lead to products being mishandled at later Insufficient product information, and/or inacequite an illness, or products becoming unsuitable for consumption, even where adequate stages in the food chain.

SECTION I- TRAINING

Those engaged in food operations who come directly or indirectly into contact with food should be trained, and/or instructed in food hygiene to a level appropriate to the operations they are to perform. Rationale:

Training is fundamentally important to any food hygiene system.

Training is fundamentally important to any root ny great system. Inadequate hygiene training, and /or instruction and supervision of all people involved in food related activities pose a potential threat to the safety of food and its suitability for consumption.

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GAZETTE NOTICE NO. 464 OF 2012

3rd August, 2012

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The Standards Act

(Cap. 416)

Declaration of Compulsory Standards

PURSUANT to section 9 of the Standards Act, notice is hereby given that at the expiry of two months from the date of this notice, the Zambia Bureau of Standards intends to recommend to the Minister under section 7(1) of the Standards Act, Cap 416 that the Zambian standard appearing in the Schedule hereto be declared compulsory standard for Zambia.

The purpose of making this recommendation is to allow Zambia Bureau of Standards to compel manufacturers, traders, importers and service industries dealing with food stuffs to comply with general principles of food hygiene.

Any person objecting to the substance of the standard should lodge written objections to the Director, Zambia Bureau of Standards, P.O. Box 50259, Lusaka within two months from the date of publication of this notice in the Government Gazette.

LUSAKA

6th June, 2012

ZAMBIAN STANDARD

ZS 034:2002

1.

N. SING 'AMBWA,

Zambia Bureau of Standard

Acting Director

Copper Cathode - Specification

SCOPE

This Standard specifies the composition and property requirements for electrolytic copper in the form of two copper cathode grades, designated Cu-CATH-1 and Cu-CATH-2.

NOTE 1: Copper cathodes are intended for melting. Cu-CATH-1 is primarily intended for the production of high conductivity copper, such as for drawing stock. Cu-CATH-2 is intended for the production of other wrought products for electrical and general purposes.

NOTE 2: Annexes A1 and A2 (normative) describes methods for sampling cathodes for use in cases of dispute between the purchaser and the supplier. Annex B (informative) gives information on the relationships between electrical resistivity and conductivity of copper. DEFINITIONS

Acceptable

Acceptable to the authority administering this standard, or to the parties concluding the purchase contract, as relevant.

Identification mark

A mark by which the origin of the material comprising the lot can be traced.

Cathode

Flat, unwrought product made by electrolytic deposition.

Lot

Quantity of copper cathodes weighing from 25 t and up to and including 200 t, consisting of one consignment, or part of one consignment, produced by one refinery.

Bundle

Total amount of a certain number of cathodes, typically 20 to 60, stacked together and secured, generally by steel bands bearing clear identification mark.

Sample cathodes

Number of cathodes randomly selected from the lot and considered in total to be representative of the lot.

Cathode sample

Portion of one of the sample cathodes (see 2.6) obtained by systematic cutting of vertical strips, systematic punching of dises/buttons across the diagonal of the cathode blade or any other internationally recognized sampling pattern producing a representative sample.

Sample produced by melting and casting into a suitable mould (or moulds) the cathode samples (see 2.7) obtained from all the sample Bulk sample cathodes and considered to be representative of the lot.

Representative fractions of swarf taken from the swarf arising from drilling, milling or sawing the bulk sample castings (see 2.8). Analysis sample

DESIGNATIONS

Material

The material is designated by a symbol (see table 2).

Product

oduct The product description provides a standard pattern of designation from which a rapid and unequivocal description of a product is ine product description provides a data comprehension at the international level with regard to product swhich meet the conveyed in communication. It provides mutual comprehension at the international level with regard to product swhich meet the requirements of the Zambian Standard or relevant European Standard.

The product designation is no substitute for the full content of the standard.

The product designation for the products to this standard shall consist of:

- denomination (Cathode);

- number of this Zambian Standard (ZS 747);

- material designation (see table 2).

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EXAMPLE:				
Cathode conforming to thi	is standard, in material	designated Cu-C	ATH-1, shall be designated a	is follows:
	Cathode	ZS 747	Cu-CATH-1	

Denomination		
Number of this		
Zambian Standard	-	
Material designation		

ORDERING INFORMATION

In order to facilitate enquiry, order and confirmation of order procedures between the purchaser and the supplier, the purchaser shall state on his enquiry and order the following:

(a) quantity of product required (mass);

(b) denomination (Cathode);

(c) number of this Zambian Standard (ZS 747);

(d) material designation (see table 2).

Note: It is recommended that the product designation, as described in 3.2, is used for items (b) to (d).

If required, the purchaser shall state on the enquiry and order any of the following: (e) the dimensions and tolerances required, if the cathodes are to be cut to size (see 5.3);

() whether a declaration of conformity is required (see 9.1);

(g) whether an inspection document is required, and if so, which type (9.2).

EXAMPLE:

Ordering details for 50 t of cathode conforming to ZS 747, in material designated as Cu-CATH-1 or as

Cu-CATH-2: 50 t Cathode ZS 747-Cu-CATH-1

OF

50 t Cathode ZS 747-Cu-CATH-2

REQUIREMENTS

Chemical composition

The chemical composition of cathode shall comply with the chemical requirements for the appropriate grade given in table 2.

Electrical properties

The electrical properties shall conform to the requirements for the appropriate grade given in table 1. The tests shall be carried out in accordance with clause 8.2.2.

Material		Electrical properties (see note 1)							
Designation		Mass resistivity Ω.g/m ² max	Nominal volume resistivity μΩ.m	Nominal conductivity					
			max.	MS/m	%IACS				
Symbol	Cu-CATH – 1 Cu- CATH – 2	0.15176 0.15328	(0.01707) (0.01724)	(58.58) (58.00)					

Table 1: Electrical properties of Cu-CATH-1 and Cu-CATH-2 at 20 °C

Dimensions and tolerances

The cathodes shall be either whole or cut to sizes as agreed between the purchaser and the supplier and stated in the purchaser's order.

Cathodes shall withstand ordinary handling without breakage. They shall be reasonably free from nodules, outgrowth edges and from all extraneous materials such as electrolyte residues, dirt, grease and oil.

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PACKAGING AND MARKING

Packaging

Cathodes, whether full size or cut, shall be assembled in bundles or containers of suitable weight for handling and shall be prepared for shipment in such a manner as to ensure acceptance by common carrier for transportation and to afford protection from normal hazards of transportation. Marking

The following information shall appear in legible and indelible marking on each cathode, or bundle of cathodes, or portions of cathodes, or container in which portions of cathodes are packed:

(a) manufacturer's name or trade name or trade mark:

(b) an identification mark by means of which the relevant production data and control test results can be traced.

When used, metallic identifying markers shall be firmly attached only to the strapping or shipping container. No metallic identifying markers shall be directly fixed to the cathodes.

SAMPLING AND COMLIANCE WITH SPECIFICATION

Sampling

For the routine sampling of cathodes for analysis or for the routine determination of electrical properties, the method of sampling

shall be at the discretion of the sampler in line with internationally recognized best operating practices. In case of dispute concerning sampling for chemical composition, the cathodes shall be sampled and the analysis samples prepared in accordance with the procedure described in either annex A1 or annex A2.

In case of dispute concerning electrical properties, unless otherwise agreed between the disputing parties (see note), the cathodes shall be sampled in accordance with the procedure described in either annex A1 or annex A2. The electrical resistivity of each lot in dispute shall be determined on one of the three test ingots cast from the bulk sample(s) (see A1.6).

Note: Other sampling methods may be used for obtaining the representative sample(s) for the determination of electrical resistivity in cases of dispute, subject to agreement between the disputing parties.

In case of special requirements specified in the purchase order or contract, the method of sampling shall be as agreed between the supplier and the purchaser.

Compliance with the specification

The lot shall be deemed to comply with the requirements of this specification if, after inspection and testing, the sample taken in accordance with 7.1 is found to comply with all the requirements of this specification.

INSPECTION AND TEST METHODS

Inspection

Inspect the sample drawn in accordance with 7.1 for compliance with the requirements of 5.4 and 6.2.

Test Methods

Analysis

Any acceptable methods of chemical analysis which are in line with internationally recognized best operating practices may be used to assess compliance with the requirements of 5.1.

Routine analysis

For the routine analysis of cathodes, the methods of analysis used shall be at the discretion of the analyst in line with internationally recognized best operating practices.

Analysis in case of dispute

In cases of dispute concerning the composition, the analysis shall be determined on the samples selected in accordance with clause 7.1 as follows:

For copper grade Cu-CATH-1, the methods of analysis used for the elements listed in table 2 shall be agreed between the disputing parties.

Electrical resistivity Routine determination of electrical resistivity

For the routine determination of electrical resistivity, the methods used shall be at the discretion of the tester in line with internationally recognized best operating practices.

Determination of electrical resistivity in cases of dispute In cases of disputes, the electrical resistivity shall be determined on a representative sample from each lot, selected in accordance with

External oxide shall be removed from the test ingot (see clause 7.1.3), which shall then be rolled and/or drawn to 2 mm diameter wire clause 7.1.3. (the sample may be hot worked initially provided care is taken to avoid contamination or excessive oxidation),

The 2 mm diameter wire shall be degreased and annealed at (500 ± 10) °C for 30 minutes in an inert atmosphere.

If there is a failure of one or more than one of the tests in 8.2.1 and 8.2.2, two test samples from the same inspection lot shall be 8.2.3 Retests It mere is a failure of one of more than one of more than one of these test samples shall be taken from the same sampling permitted to be selected for retesting the failed property (properties). One of these test samples shall be taken from the same sampling permitted to be selected for relesting the failed property the property that sampling unit is no longer available, or has been withdrawn by unit as that from which the original failed test piece was taken, unless that sampling unit is no longer available, or has been withdrawn by

If the test pieces from both test samples pass the appropriate test(s), then the inspection lot represented shall be deemed to conform the supplier.

to the particular requirement(s) of this standard. If a test piece fails a test, the inspection lot represented shall be deemed not to conform to this standard.

For the purpose of determining conformity to the limits specified in this standard for composition or for electrical resistivity, an Rounding of results observed or a calculated value obtained from a test shall be rounded in one step to the same number of figures used to express the specified

limit in this standard.

The following rules shall be used for rounding:

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(a) if the figure immediately after the last figure to be retained is less than 5, the last figure to be retained shall be kept unchanged;
 (b) if the figure immediately after the last figure to be retained is equal to or greater than 5, the last figure to be retained shall be increased by one.

DECLARATION OF CONFORMITY AND INSPECTION DOCUMENTATION DOCUMENTATION

Declaration of Conformity

When requested by the purchaser and agreed with the supplier, the supplier shall issue for the product the appropriate declaration of conformity in the form of a certificate of analysis.

Inspection of documentation

When requested by the purchaser and agreed with the supplier, the supplier shall issue for the product the appropriate inspection document in the form of a formal report as agreed between the two parties.

MATERIAL									(CHEM	ICAL	COMP	OSITI	ON							
DESIGNATION SYMBOL	Cu	Cu	Ag	As	Bi	Cđ	Co	Cr	Fe	Mn	Ni	P	РЬ	S	Sb	Se	SI	Sn	Te	Zn	Total sum of listed elements other than copper
	%	Ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	թթա	ppm	ppm	
	min	Max	max	max	max	max	max	max	max:	m a x	max	max	max	max	max	max	m A x	max	max	max	
Cu-CATH-1	-	25	5 (1)	2 (2)	(1)	(3)	(1)	10(3)	(1)	(3)	(1)	5	15(4)	4(1)	2(2)	(3)	(3)	2(2)	(3)	65	
Cu-CATH-2	99.0	-	-	5	-	-	-	-	•	-	5	-	-	-	-	-	-	-	-	300 (excluding Ag)	
(1) - (As+Cd+Cr+ (2) - (Bi+Se+Te) PHYSICAL SPE	+Mn+ = Max CIFIC	P+Sb) ximum CATIO	= Max 3 ppm, NS: C	cimum of whi u-CAT	15 ppn ich (Se H-1	n. +Te) =	Maxin	num 3 į	opm.		(3) - (4) -	(Co+Fe The su	e+Ni+S lphur c	i+Sn+. ontent	Zn) = shall b	Maxim e dete	um 20 rmined	ppm. on a co	ast san	aple	
SURFACE CONL	DITIO	NS								T	* OR!	HINAL	CON	DUCTI	VITY						
1. Cathodes shall 2. They shall be r and from c) all extr iii) grease and iv) o	' withs reason raneou oil.	stand o ably fr is mate	rdinary ee fron rials su	r handi n a) na nch as	ling wi odules, 1) elect	thout b b) out trolyte	oreakag growth residue	edges edges is, ii) d	irt,		% 1.4C. Copper µ&!S.) conduc 100.0) calcula	S (Min) Standa b I Im a tivity o NOTE tions re) = 101 ard. Thi at 20 % f 100 9 : Detai efer to .	OLEG s is ba C, whi 6 IACS led tre Annex	END: sed on ch is a 5 at 20 atmen B.	IACS a volu define %C.(% t of co	= Inter ime res d as c 6 IACS onducti	rnation istivity orrespe for Cu vity an	al Ann of 0.01 onding I-CATI d resis	ealed 17241 10 a 1-2 = stivity	

TABLE 2: COMPOSITION OF CU-CATH-1 AND CU-CATH-2

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Annex A1

(Normative)

Methods for use in cases of dispute for the sampling of cathodes and for the preparation of analysis samples. A1.1 Introduction

A technique is described, which is intended for use in cases of dispute, for the selection of samples from a consignment of cathodes. The procedures are also described for obtaining from these selected cathode samples, replicate laboratory samples representative of the consignment in a form suitable for analysis and for determination of the electrical properties.

A1.2 Definitions

For purposes of this method, the definitions in 2.6 to 2.9 apply.

- A1.3 Apparatus and reagents
- A1.3.1 A high purity Crucible, with a close fitting lid.
- A1.3.2 Hydrochloric acid, 10 % (by volume), commercial grade. A1.3.3

Deionized water

A1.3.4 Electric induction, or resistance, melting furnace, with provision for an inert internal atmosphere at high temperatures. A1.3.5 Rod

A1.3.6 Test ingot moulds to provide ingots 20 mm x 20 mm in cross section and 100 mm to 200 mm long.

Note: Other designs of test ingots moulds may be used, subject to agreement between the purchaser and the supplier.

A1.3.7 Drilling, milling or sawing machine, equipped with carbide tipped cutting tools.

A1.3.8 Magnet

A1.4 Selection of sample cathodes

A1.4.1 Division of a consignment into lots

A1.4.1.1 If the consignment of cathodes originates from one refinery, consider it as one lot if it consists of 25 t and up to and including 200 t of cathodes. Subdivide any consignment greater than 200 t into a number of approximately equal lots, each not exceeding 200 t.

A1.4.1.2 If the consignment consists of cathodes originating from more than one refinery, separate it into part consignments, each from one refinery and divide each part consignment into lots, as described in A1.4.1.1.

A1.4.2 Random sampling of a lot

Randomly select 24 sample cathodes from each lot using either method (a) or (b) as follows:

- (a) number consecutively every cathode in the lot. Randomly select 24 sample cathodes by the use of random number tables.
- (b) number consecutively every bundle in the lot. Randomly select 24 individual bundles by the use of random number tables. Number sequentially each cathode position within a typical bundle. By the use of the random number tables, randomly select one cathode from each randomly selected bundle to produce 24 sample cathodes.

If the lot consists of less than 24 bundles, use method (a). If the lot consists of 24 bundles or more, the choice of method is a matter for agreement between the purchaser and the supplier. If no specific choice is made, use method (a).

A1.5 Preparation of cathode samples

Individually sample each of the 24 sample cathodes, selected in accordance with A1.4, by cutting a vertical strip from each cathode. The strip shall be from such a position that the collection of the 24 strips so cut represents all points of one, two or three full cathodes, including the cathode edges and the hangers. Ensure that all the vertical strips are of the same width and are cut sequentially from left to right in the same order as the sample cathodes were selected.

A1.6 Preparation of bulk sample

Prepare a clean crucible (see A1.3.1) by melting in it a quantity of copper from the lot to be analyzed and discard this melt.

Clean the 24 strips selected in accordance with A1.5, by immersing them in 10 % hydrochloric acid (see A1.3.2) at ambient temperature for 15 minutes. Then thoroughly wash the cathode strips in deionized water (see A1.3.3) and allow them to dry.

Depending upon the size of the melting equipment available, proceed according to (a) or (b) as follows, taking care to avoid ingress of oxygen into the melt so as to avoid oxidation of iron and chromium, which could affect the subsequent analysis:

- (a) place all the cleared strips into the cleaned crucible in the furnace (see A1.3.4) and heat under an inert atmosphere until the sample is melted. Thoroughly stir the melt, which constitutes the bulk sample, with a rod (see A1.3.5) and cast it into conventional ingot moulds, pouring three test ingots, one each at the beginning, middle and end of the casting operation, using the test ingot moulds (see A1.3.6).
- (b) if the available furnace/crucible is not large enough to melt the composite sample, then group the 24 strips into two or more batches for melting and casting, as in A1.6 (a), casting three test ingots from each batch, as before, into the moulds see (A1.3.6).

Use one of the three test ingots obtained from (a) or (b) for the determination of the electrical properties in cases of dispute (see clause 8.2.2).

Preparation of aggregate analysis sample

Sample all the test ingots prepared in accordance with A1.6 by drilling, milling or sawing. Use carbide tipped tools, taking care to Sample all the test ingots prepared in according to the chips, to produce an aggregate analysis sample exceeding 600 g of small chips, avoid overheating and consequent oxidation of the chips, to produce an aggregate analysis sample exceeding 600 g of small chips, representative of the bulk sample and hence the lot.

Use a magnet to remove carefully any ferrous particles present in the aggregate sample.

A1.8 Preparation and distribution of analysis sample

A1.0 Freparation and user sample obtained in accordance with A1.7 into four portions, each to be a minimum of 150 g. Divide the aggregate analysis sample obtained in accordance with A1.7 into four portions, each to be a minimum of 150 g. Place each portion into a clean, dry container and identify the container clearly with the following:

(a) date and place of sampling;

- (b) details of the consignment/lot(s) represented by the sample;
- (c) the name of the sampler;
- (d) the sample number;

(e) any other relevant information. Use one of these portions for analysis by the supplier, one for analysis by the purchaser, reserve one for referee analysis (in case this should become necessary) and reserve the fourth for contingencies.

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Annex A2

(Normative)

Alternative methods for use in cases of dispute, for the sampling of cathodes and for the preparation of analysis samples

Introduction

The European Standard EN 1978 contains a method for sampling cathodes which involves cutting strips from the cathodes and melting them. (see method in A2.2 below). However, the method is tedious and requires some specialized equipment.

An alternative method based on drilling the cathode in a given pattern is generally just as acceptable for most purposes and is more readily carried out. (see method in A2.3 below).

The drilling method is further adapted for use with cathodes generated by SX-EW (solvent extraction electrowinning) process. It has been known for the Pb based anodes used in this process to deteriorate resulting in the deposition of Pb as an impurity in the centre of the bottom part of the cathode. Whilst the EN sampling procedure would capture this contamination, it is possible that a simple diagonal drilling pattern may miss it. A different, more complex pattern was therefore devised to cover this possibility. (see method in A2.4 below).

The final section (A2.5) describes sample preparation for analysis by Optical Emission Spectroscopy (OES).

European Standard EN 1978

The following extracts or summaries are taken from the standard.

Sampling Lot Size

Each identified production batch to be sampled separately.

Sampling Lot Size not to exceed 200 t but with a minimum weight of cathodes of not less than 25 t.

Bulk Sample Increments

Individually sample each of the 24 sample cathodes by cutting a vertical strip from each cathode. The strip shall be from such a position that the collection of the 24 strips so cut represents all points of one, two or three full cathodes, including the cathode edges and the hangers. Ensure that all the vertical strips are of the same width and are cut sequentially from left to right in the same order as the sample cathodes were selected.

Treatment of Bulk Sample

Clean the sample strips in dilute hydrochloric acid and wash with deionized water.

Melt the convenient batches of the strips in a suitable furnace taking care to exclude oxygen. Pour 3 sample ingots from each melt and drill, saw or melt the sample ingots for the final analysis sample.

Electro Refined Copper

Basis of the Procedure

As outlined below.

Sampling Lot Size

Each identified production batch to be sampled separately.

Sampling Lot Size not to exceed 200 t but with a minimum weight of cathodes per lot not less than 25 t.

Primary Sample

Randomly select 24 cathodes from each sampling lot.

Sample Increments - drilling or punching

Sampling positions on the cathode

Define 28 sampling positions along the diagonal of the cathode ensuring that the first and last include the edges of the cathode as per Fig A2.1 below;



Fig A2.1: 28 sampling points defined across the diagonal of the cathode for purposes of sub sampling of cathode derived from an electro-refined process.

The cathodes are sampled at the indicated points by drilling or punching. Sample the first 6 cathodes at the 7 locations marked "1", the next 6 cathodes at locations "2", the next 6 cathodes at locations "3" and the final 6 cathodes at locations "4". Drilling must be done carefully to avoid oxidation of the sample. A 17 mm drill bit running at a speed of no more than 300 rpm and cooled with acetona would be out of the sample. with acetone would be suitable.

Size reduction of drillings

Snip the drillings into small pieces and combine all increments for each sampling lot. Removal of Iron contamination

Use a magnet to remove any contamination from the drilling/snipping processes. Mixing of sample

Mix the sample well and divide into the required number of sample packets. SX-EW Copper Cathode

Basis of the procedure

As outlined below.

Sampling Lot Size

Each identified production batch to be sampled separately.

Sampling Lot Size not to exceed 200 t but with a minimum weight of cathodes per lot not less than 25 t.

Primary Sample

Randomly select 24 cathodes from each sampling lot.

Sample increments

Sub sampling of each cathode

Drill/punch the sample cathodes as for Copper Cathode - Electrorefined as in clause A2.3.4 but using a template given in Fig A2.2 below:-

	2	3	4	5	6	7	1			
	3	4	5	6	7	1	2			
	4	5	6	7	1	2	3			
	5	6	7	1	2	3	4			
	6	7	1	2	3	4	5			
	7	1	2	3	4	5	6			
	1	2	3	4	5	6	7			
L										

Fig A2.2: 49 sampling points defined across the blade of the cathode for purposes of sub sampling of cathode derived from an SX-EW process.

Treatment of sample

Treat the sample drillings as in A2.3.4.2 to A2.3.4.4.

Sample Preparation for Optical Emission Spectroscopy (OES)

Removal of Iron contamination

Use a magnet to ensure that the sample contains no Fe contamination.

Induction melting of analysis sample

Melt 30 g sample in a graphite crucible under an Argon atmosphere using the Lecomelt induction furnace.

Sub-sampling of melled sample

When completely molten, extract some of the copper into a pure graphite tube using a rubber teat/pipette bulb.

Removal of crucible

Remove the crucible from the melting apparatus and allow to cool.

Snip the rod (from graphite tube in A2.5.3) approximately 0.4 g pieces for arc analysis.

Removal of button from crucible for spark analysis

Remove the button from the crucible and clean the surface (by turning in a lathe using a tungsten carbide tipped tool) for spark analysis.

Annex B

(Informative)

INFORMATION ON ELECTRICAL RESISTIVITY AND CONDUCTIVITY RELATIONSHIPS

B.1 Mass resistivity

Determination of cross-sectional areas to the requisite degree of accuracy is difficult. Hence, in practice nearly all assessments of resistivity are made by measuring the resistance, mass, and length of the representative sample. Mass resistivity can be calculated directly from these values and this gives a true measure of the quality of the copper for carrying electric current.

B.2 Standard annealed copper (IACS)

Standard annealed copper is based on a volume resistivity of 1/58 $\mu\Omega$.m or 0.017241 $\mu\Omega$.m at 20 °C, which is defined as corresponding to a conductivity of 100 % IACS at 20 °C. The introduction of the International ohm in 1948 altered the volume resistivity of standard annealed copper by only 0.049 %.

Also on this earlier evidence the standard annealed copper is allotted a density of 8.89 g/cm³.

B.3 Commercial annealed copper

The (electrical) conductivity of commercial annealed copper shall be expressed as a percentage, at 20 °C, of that of standard annealed copper given to approximately 0.1 %", on assumption that "the density of copper annealed copper at 20 °C is 8.89 g/cm³"

B.4 Nominal volume resistivity

The density of commercial copper varies with small changes in composition, particularly oxygen content. Thus, a true volume can only be calculated from a measured mass resistivity if the true density of the particular sample is known or is measured to the requisite degree of accuracy, i.e. better than 0.1 %.

For general purposes, however, a nominal volume resistivity may be calculated using the density of 8.89 g/cm³, as referred to in clause B.2, and used in table 1.

B.5 Differences between measured and nominal values

If true volume resistivity or true conductivity is required from measured mass resistivity and therefore actual density is used in calculation, differences of up to 0.5 % may result between these values and the corresponding nominal values.

Conductivity calculated from the ratio of the mass resistivity of standard annealed copper (0.15328 Ω .g/m²) to the derived mass resistivity may also exhibit a similar disparity.

GAZETTE NOTICE NO. 465 OF 2012

[3919506

The Lands and Deeds Registry Act (Chapter 185 of the Laws of Zambia) (Section 56)

Notice of Intention to Issue a Duplicate Certificate of Title

FOURTEEN DAYS after the publication of this notice I intend to issue a Duplicate Certificate of Title No. 24589 relating to Stand No. 3783 in extent 22,500 square metres situate at Ndola in the Copperbelt Province of the Republic of Zambia.

REGISTRY OF LANDS AND DEEDS P.O. BOX 30069 LUSAKA CHIEF REGISTRAR OF LANDS