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Sales Specifications

Product: Polyethylene Terephthalate (PET) Polymers - Copolymer

RAMAPET N1

Sl. No	Property	Unit	Specifications	Test Equipmet
1	Intrinsic Viscosity	dl/g	0.80 ± 0.02	IR-001 (Ubbelohde Viscometer)
2	Acetaldehyde	ppm	1 Max.	IR-002 (Gas Chromatograph)
3	Melting point	°C	247 ± 2	IR-003 (Differential Scanning Calorimeter)
4	Color b		-1.5 ± 1.5	IR-004 (CIE Lab)
5	Crystallinity	%	50 Min.	IR-005 (Density Gradient Column)
6	Moisture content (when packed)	wt %	0.2 Max.	IR-006 (Gravimetric Method)
7	Chips / gm	pieces	60 ± 5	IR-007 (Weighment Method)

Description

RAMAPET N1 is a General purpose food grade PET copolymer resin that is suitable for a wide variety of containers. The resin offers good strength characteristics like dimensional stability and mechanical properties. Suitable for Carbonated water, Alcoholic beverages, Pharmaceuticals, Oils, Agrochemicals, wide mouth containers and for APET sheet / Film extrusion application. It is also suitable for heat set blow molding that are used for warm fill applications

RAMAPET N1 resin is considered safe for food packaging applications based upon compliance with FDA regulation 21 CFR Section 177.1630, EC Directive 2002/72/EC & EC Directive 2004/19/EC amendment, EC Directive 94/62/EC and the CONEG Regulation (Heavy metals).

Warranty

Indorama warrants that its products will comply with the specifications and related regulatory compliance detailed in its publications. No other warranty, either expressed or implied regarding the suitability of the product for any particular purpose is made. The buyers are expected to make their own determination about the safety, health, environmental protection and suitability of use for their intended purpose. No warranty is made of the merchantability or fitness of any product and nothing herein waives any of the seller's conditions of sale.

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MATERIAL SAFETY DATA SHEET

PRODUCT NAME : RAMAPET A1, RAMAPET N1, RAMAPET N2, RAMAPET R1

SECTION I	NAME
PRODUCT :	RAMAPET
CHEMICAL NAME :	POLYETHYLENE TEREPHTHALATE (PET)
CHEMICAL FAMILY :	COPOLYMER RESIN
CHEMICAL FORMULA :	$(C_{10}H_8O_4)_n$
PRODUCT CODE :	A1, N1, N2, R1
MANUFACTURER :	UAB ORION GLOBAL PET, LITHUANIA
	(A subsidiary of INDORAMA POLYMERS PUBLIC COMPANY LIMITED)
	Tel: +370 46 300 684, +370 46 300 686

SECTION II	TOXICOLOGICAL INFORMATION

SPECIFIC TOXICITY TESTS HAVE NOT BEEN CONDUCTED ON THIS PRODUCT. OUR HAZARD EVALUATION IS BASED ON INFORMATION FROM SIMILAR PRODUCTS, THE INGREDIENTS, TECHNICAL LITERATURE, AND/OR PROFESSIONAL EXPERIENCE.

NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN 0.1% IS IDENTIFIED AS CARCINOGEN BY THE U.S.NATIONAL TOXICOLOGY PROGRAM, THE U.S. OCCUPATIONAL SAFETY AND HEALTH ACT, OR THE INTERNATIONAL AGENCY ON RESEARCH ON CANCER (IARC).

SECTION III	HEALTH INFORMATION

THE HEALTH EFFECTS BELOW ARE BASED UPON COMPONENT HEALTH EFFECTS CONSISTENT WITH REQUIREMENTS UNDER OSHA HAZARD COMMUNICATION (29 CFR 1910.1200).

EYE CONTACT :	PRODUCT FINES CAN CAUSE MECHANICAL IRRITATION.
SKIN CONTACT :	PRODUCT IS UNLIKELY TO CAUSE IRRITATION.
INHALATION :	PRODUCT FINES MAY CAUSE MECHANICAL IRRITATION.
IN GESTATION :	PRODUCT IS PRACTICALLY NON - TOXIC.
SIGNS AND SYMPTOMS :	IRRITATION AS NOTED ABOVE.
AGGRAVATED MEDICAL CONDITIONS :	PRE EXISTING EYE AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO PRODUCT FINES.

SECTION IV	EMERGENCY AND FIRST AID PROCEDURES
EYE CONTACT :	FLUSH EYES WITH WATER IF IRRITATION OCCURS . IF MOLTEN MATERIAL CONTACTS WITH EYE, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION IMMEDIATELY.
SKIN CONTACT :	IF CONTACT WITH MOLTEN PRODUCT OCCURS , TREAT AS FOR THERMAL BURN .
INHALATION :	NOT ORDINARILY REQUIRED
INGESTION :	NOT ORDINARILY REQUIRED
NOTE TO PHYSICIAN :	BURNS SHOULD BE TREATED AS THERMAL BURNS. THE MATERIAL WILL COME OFF AS HEALING OCCURS, THEREFORE, IMMEDIATE REMOVAL FROM SKIN IS NOT NECESSARY.

PRODUCT NAME : RAMAPET A1, RAMAPET N1, RAMAPET N2, RAMAPET R1

SECTION V	PHYSICAL DATA
BOILING POINT :	NOT APPLICABLE
SPECIFIC GRAVITY(H_2O=1) :	1.3 - 1.5
VAPOR PRESSURE :	NOT APPLICABLE
MELTING POINT (^{0}C) :	245 - 265
SOLUBILITY (IN WATER) :	INSOLUBLE
VAPOR DENSITY (AIR=1)	NOT APPLICABLE
EVAPORATION RATE :	NOT APPLICABLE
PHYSICAL FORM :	SOLID
ODOR :	ODORLESS
COLOR :	VARIES WITH FORMATION

SECTION VI	FIRE AND EXPLOSION HAZARD
FLASH POINT & METHOD	NOT APPLICABLE
FLAMMABLE LIMITS / % VOLUME IN AIR :	LOWER : NOT APPLICABLE UPPER : NOT APPLICABLE
EXTINGUISHING MEDIA :	USE WATER FOG , FOAM , DRY CHEMICAL , OR CO2
SPECIAL FIRE FIGHTING PROCEDURE AND PRECAUTIONS :	MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.
UNUSUAL FIRE AND EXPLOSION HAZARD :	HIGH DUST CONCENTRATIONS HAVE A POTENTIAL FOR COMBUSTION OR EXPLOSION. TREAT AS A SOLID THAT CAN BURN. MOLDED PARTS GENERALLY BURN SLOWLY WITH A LOW SMOKE DENSITY AND FLAMING DRIPS. UNDER CERTAIN CONDITIONS CAN BURN WITH A HIGH SMOKE DENSITY.
EXPOSURE LIMITS :	PERMISSIBLE EXPOSURE LIMIT (PEL) AND THRESHOLD LIMIT VALUE (TLV)- NOT ESTABLISHED, HOWEVER , VENTILATION ADEQUATE TO MAINTAIN LESS DUST CONCENTRATION (~10 AIR CHANGES / HOUR) SHOULD BE MAINTAINED.

SECTION VII	REACTIVITY
STABILITY :	STABLE
HAZARDOUS POLYMERIZATION :	WILL NOT OCCUR.
CONDITIONS AND MATERIAL TO AVOID :	STRONG OXIDIZING AGENTS.
HAZARDOUS DECOMPOSITION PRODUCTS :	AT PROCESSING TEMPERATURE, SOME DEGREE OF THERMAL DEGRADATION WILL OCCUR , ALTHOUGH HIGHLY DEPENDENT ON THE TEMPERATURE AND ENVIRONMENTAL CONDITIONS, A VARIETY OF DECOMPOSITION PRODUCTS MAY BE PRESENT RANGING FROM SIMPLE HYDROCARBONS TO TOXIC / IRRITATION GASES.

PRODUCT NAME : RAMAPET A1, RAMAPET N1, RAMAPET N2, RAMAPET R1

SECTION VIII	EMPLOYEE PROTECTION
RESPIRATORY PROTECTION :	NOT ORDINARILY REQUIRED.
PROTECTIVE CLOTHING	NOT ORDINARILY REQUIRED.
ADDITIONAL PROTECTIVE MEASURES :	ADEQUATE VENTILATION AND / OR ENGINEERING CONTROL'S ARE REQUIRED WHEN PRODUCT IS HEATED IN PROCESSING.

SECTION IX	ENVIRONMENTAL PROTECTION
SPILL OR LEAK PROCEDURES :	SHOVEL AND SWEEP UP OR USE INDUSTRIAL VACUUM CLEANER , AVOID GENERATING DUST CLOUDS . PUT INTO CONTAINERS FOR RECLAIMING OR DISPOSAL.

SECTION X	SPECIAL PRECAUTIONS
TREAT AS A SOLID THAT CAN BURN . STORE AWAY OXIDIZING MATERIALS, IN A COOL, DRY PLACE WITH ADEQUATE VENTILATION. BOND AND GROUND TRANSFER EQUIPMENT.	
AVOID VAPORS FROM HEATED PRODUCTS. ADEQUATE VENTILATION AND / OR ENGINEERING CONTROLS MUST BE EMPLOYED IN HIGH TEMPERATURE PROCESSING TO PREVENT EXPOSURE TO POTENTIALLY TOXIC/IRRITATING FUMES.	

SECTION XI	TRANSPORTATION INFORMATION
DOT (USA) STATUS :	NOT REGULATED.
CANADIAN TRANSPORTATION OF DANGEROUS GOODS	NOT REGULATED.
EUROPEAN ROAD/RAIL (ADR/RID)	NOT REGULATED.
AIR : ICAO (INTERNATIONAL CIVIL AVIATION ORGANIZATION)	NOT REGULATED.
SEA : IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)	NOT REGULATED.

SECTION XII	HANDLING AND STORAGE
HANDLING:	AVOID EXTREME CONDITIONS OF HEAT AND HUMIDITY. AVOID BUILD UP OF STATIC ELECTRICITY. PELLET HANDLING EQUIPMENT SHOULD BE GROUNDED TO PREVENT BUILDUP OF ELECTROSTATIC CHARGE. USE WITH ADEQUATE VENTILATION. AVOID DUST ACCUMULATION.
STORAGE:	KEEP CONTAINER CLOSED. PELLETS ON THE FLOOR MAY BE SLIPPERY AND CAUSE FALLS. STORE IN BOXES IN ACCORDANCE WITH GOOD MATERIALS-HANDLING PRACTICES.

PRODUCT NAME : RAMAPET A1, RAMAPET N1, RAMAPET N2, RAMAPET R1

SECTION XIII	OTHER REGULATION CONTROLS

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE IPA / TSCA INVENTORY OF CHEMICAL SUBSTANCES

PROTECTION OF STRATOSPHERIC OZONE (PURSUANT TO SECTION 611 OF THE CLEAN AIR ACT AMENDMENTS OF 1990) ; PER 40 CFR PART 82, THIS PRODUCT DOES NOT CONTAIN NOR WAS IT DIRECTLY MANUFACTURED WITH ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCES.

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986) : MATERIAL(S) KNOWN TO THE STATE TO CAUSE CANCER OR MATERIAL(S) KNOWN TO THE STATE TO CAUSE ADVERSE REPRODUCTIVE EFFECTS : NONE

THIS DOCUMENT HAS BEEN PREPARED IN ACCORDANCE WITH THE MSDS REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200.

SECTION XIV	OTHER INFORMATION

FOR OTHER INFORMATION, CALL AT Tel: +370 46 300 684, +370 46 300 686

_ THE INFORMATION CONTAINED HEREIN IS BASED ON CURRENT KNOWLEDGE AND EXPERIENCE; NO RESPONSIBILITY IS ACCEPTED THAT THE INFORMATION IS SUFFICIENT OR CORRECT IN ALL CASES.

_ USERS SHOULD CONSIDER THESE DATA ONLY AS SUPPLEMENT TO OTHER INFORMATION GATHERED BY THEM. THEY MUST MAKE INDEPENDENT DETERMINATIONS OF SUITABILITY AND COMPLETENESS OF INFORMATION FROM ALL SOURCES TO ASSURE PROPER USE AND DISPOSAL OF THESE MATERIALS FOR THE SAFETY AND HEALTH OF EMPLOYEES AND CUSTOMERS AND THE PROTECTION OF THE ENVIRONMENT. IT IS THE USERS OBLIGATION TO COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS.

_ NO STATEMENT MADE IN THIS DATA SHEET SHALL BE CONSTRUCTED AS A PERMISSION OR RECOMMENDATION FOR THE USE ANY PRODUCT IN A MANNER THAT MIGHT INFRINGE EXISTING PATENTS. NO WARRANTY IS MADE EITHER EXPRESS OR IMPLIED.

DATE REVISED : MAY 2007

REACH

Substances Of Very High Concern (SVHC) Assessment Certificate

Company Details:

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POLYESTER DIVISION
KEMBANG KUNING ,UBRUG,
JATILUHUR,PO BOX 2, PURWAKARTA
41101 JAWA BARAT
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Article Description:

Polyester Chips, Polyester Staple Fibres(with and without NPEO free lubricant;IIP),Hollow fibre (Siliconised, Slick and Dry type), Undyed Polyester Yarns,Partially Oriented Yarn(POY;POY IIP),Spin Drawn Yarn(SDY),Fully Oriented Yarn(FOY),Draw Textured Yarn (DTY,DTY IIP),Bicomponent Yarn (BCY),Textured Optical Bright Yarn, Dope Dyed Polyester Yarn(carbon black),Spandex Covered Yarn(SCY), Cationic Yarn. PET chips as Ramapet resin (N1,N2 and S1), Ramapet resin reheat (N2R and R1) and Ramapet Bio reheat (N2RB and ES11B).

Certificate No: 24534

Statement:

This article/product has been assessed for SVHC compliance based on information provided by the customer. This certificate applies only to those articles as described in report STL/37675. The articles in question comply with the requirements of the current SVHC list issued on 16.06.2014, in that they do not contain SVHC at levels greater than 0.1%w/w. Any subsequent variation in the production of this article/product (this includes changes in raw materials, chemical usage or processing), invalidates this assessment/certification. This Certificate is also invalidated as soon as the next version of the SVHC list comes into force.

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Signed:

Phil Whitaker
Technical Manager

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