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**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

1.1 Product identifier

Trade name	Linear Low Density Polyethylene – Copolymer 1-Butene
Name of the chemical	SLL118, SLL118-21, SLL218, SLL218-21, SLL318, SLL5405S.

1.2 Relevant identified uses of the substance or mixture and uses advised against  
Not applicable

1.3 Details of the supplier of the safety data sheet

Supplier	BRASKEM Netherlands BV Weena 238 – 240, 9th Floor Tower C NL-3012NJ Rotterdam E-mail: <a href="mailto:polymer.compliance-europe@braskem.com">polymer.compliance-europe@braskem.com</a> Telephone: +31107985002
Manufacturer	Braskem S.A. Rua Eteno, 1561, Polo Petroquímico de Camaçari Camaçari, BA, CEP: 42810-000, Brasil  Braskem S.A. BR 386 – Rodovia Tabaiá-Canoas, km 419, Via do Contorno, 850 Triunfo, RS, CEP: 95853-000, Brasil  Braskem S.A. Rua Marumbi, 1001 Duque de Caxias, RJ, CEP: 25221-000, Brasil  Braskem S.A. Rua da União, 756 Mauá, SP, CEP: 09380-900, Brasil Telephone: 55(11)3583-2200


1.4 Emergency telephone number

Emergency phone number (CHEMTREC)	+1 703-741-5970 (International – 24h) +(44)-870-8200418 (UK – 24h)
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**SECTION 2: Hazards identification**

2.1 Classification of the substance or mixture

Description	The product is not classified as hazardous according to Regulation (EC) No 1272/2008.
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	<p>Adverse effects to the human health: In case of dust, Braskem suggests it to be treated as annoying dust or particulate, by international recommendations. Dust may irritate the respiratory tract.</p> <p>Environmental Effects: It's expected that the product shows high persistence and slow degradability.</p>
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## 2.2 Label elements

Label elements	The product is not classified as hazardous according to Regulation (EC) No 1272/2008. The product does not require labelling.
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## 2.3 Other hazards

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1 Substance

Not applicable

### 3.2 Mixtures


Chemical name	CAS No. EC No.	Concentration	Classification	H-phrase
PE copolymer 1-butene	25087-34-7 607-541-7	< 100%	-	-

Substance additional information	Doesn't have ingredients or impurities that contribute to the hazard classification.
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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Inhalation	No risks concerning inhalation at room temperature. In case of inhalation of dusts or vapours at high temperatures, remove the victim to fresh air and keep it in rest. Seek medical attention. Take this SDS.
Skin contact	No health risks concerning skin contact at room temperature. In case of contact with the hot product and if irritation happens, wash with plenty of water. Remove clothing impregnated with the product. Seek medical attention. Take this SDS.
Eye contact	Wash with running water for at least 15 minutes, keeping the eyelids open. Remove contact lenses if that's the case. Seek medical attention. Take this SDS.
Ingestion	Rinse the victim's mouth with plenty of water. DO NOT INDUCE VOMITING! Seek medical attention. Take this SDS.

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#### 4.2 Most important symptoms and effects, both acute and delayed

In case of dust formation and inhalation, may cause cough and sneezing.

#### 4.3 Indication of any immediate medical attention and special treatment needed

Avoid contact with this product while helping the victim. Keep the victim in rest and warm. Do not provide anything to an unconscious person. The symptomatic treatment should include, above all, measures of support as correction of hydroelectrolytic and metabolic disturbances and respiratory care.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

Suitable extinguishing media	Carbon dioxide, dry chemical powder, foam, water fog.
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#### 5.2 Special hazards arising from the substance or mixture

When in a fire, may produce irritating and toxic gases like carbon monoxide and dioxide.

#### 5.3 Advice for firefighters

Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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Other

Measures in case of fire	Cool closed containers exposed to fire with water spray. Firefight at safe distance. Evacuate the area.
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### SECTION 6: Accidental release measures


#### 6.1 Personal precautions, protective equipment and emergency procedures

Control of dust: The product doesn't generate dust.

Removal of ignition sources: Product isn't flammable. Eliminate preventively all the ignition sources around the area. Do not smoke in the area.

Provision of sufficient ventilation: Use in a well-ventilated area.

Prevention of inhalation and skin, mucous membranes and eyes contact: Avoid contact with eyes. Use protective equipment as specified in section 8 of SDS.

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#### 6.2 Environmental precautions

Do not let this chemical enter the environment (soil, waterways and groundwater).  
Do not dispose directly on the environment or the sewer.

#### 6.3 Methods and material for containment and cleaning up

Use a method that does not generate dust. Collect the material in proper containers and remove them to a safe place.

#### 6.4 Reference to other sections

Not applicable

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Preventive handling precautions	Handle in a well-ventilated area or with a general system of local ventilation/exhaustion. Avoid contact with eyes and clothing. Remove ignition sources and heat. Do not smoke. Use exposure control measures and personal protective equipment as indicated in Section 8.
General hygiene	Do not eat, drink or smoke when using this product. Wash hands before eating, drinking, smoking or going to the toilet. Take off all contaminated clothing and wash before reuse.

#### 7.2 Conditions for safe storage, including any incompatibilities

Keep the product in its original packaging and in a cool, dry, safe from direct sunlight and fireproof place. Keep the containers tightly closed. Keep away from food and drink. Keep away from children.

Incompatibilities: Fluorine, strong acids, strong oxidising agents, chlorinated solvents and aromatic compounds.

Packaging materials: The polyethylene resin, being an inert material, can be packaged in 25kg bags and big bags.

#### 7.3 Specific end use(s)

Not applicable

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

Not applicable

#### 8.2 Exposure controls

Technical precaution measures	Provide mechanical ventilation or direct exhaust to the external media. It is recommended to have safety shower and eye bath available near work site. The
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	engineering controls measures are the most effective to reduce exposure to the product.
Eye / face protection	Safety goggles with lateral protection. Avoid using contact lenses while handling this product.
Other skin protection	Suitable protective suit.
Thermal hazards	Complete air-ventilated suit, with air supply, or any thermo-resistant clothing available.
Respiratory protection	Specific respiratory protection equipment is not required.
Environmental exposure controls	Do not discharge directly into the environment or into the sewer system. The dilution water from firefighting can cause pollution.

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

Appearance, colour	Translucent / white
Appearance, physical state	Solid
Auto-ignition temperature	350 °C
Decomposition temperature	Not applicable
Density	0,913 – 0,925 g/cm <sup>3</sup>
Evaporation rate	Not applicable
Explosive properties	Not applicable
Flammability (solid, gas)	Not applicable
Flammability (solids)	Non-flammable
Flash point	Not applicable
Initial boiling point and boiling range	Not applicable
Melting point / freezing point	Not applicable
Odour	Not applicable
Odour threshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol / water	Not applicable
pH value	Not applicable
Relative density	Not applicable
Solubility	Soluble in xylene
Solubility in water	Insoluble in water
Upper / lower flammability or explosive limits	Not applicable
Vapour density	Not applicable
Vapour pressure	Not applicable

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Viscosity	Not applicable
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#### 9.2 Other information

Polyethylene's maximum time of storage is 24 months after production, except of IDEALIS resins, which maximum time of storage is 30 months.

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Not applicable

#### 10.2 Chemical stability

Chemical stability	Stable under normal usage and storage conditions. Does not undergo depolymerization.
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#### 10.3 Possibility of hazardous reactions

Possibility of hazardous reactions	Reacts violently with fluorine.
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#### 10.4 Conditions to avoid

Conditions to avoid	High temperatures. Incompatible materials.
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#### 10.5 Incompatible materials

Incompatible materials	Fluorine, strong acids, strong oxidising agents, chlorinated solvents and aromatic compounds.
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#### 10.6 Hazardous decomposition products

Hazardous decomposition products	The decomposition products depend on the processing temperature and the presence of other materials. The processing temperature is about 250 °C. At this temperature, the concentrations of some hazardous substances, when detected, are below the level of action adopted by international references (ACGIH, NIOSH and OSHA). At temperatures above melting temperatures, the profile of the decomposition products may be different and fumes may be irritating.
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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Acute toxicity	Non-toxic product. LD50/oral/rat >4000 mg/kg
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Skin corrosion/irritation	Not irritating.
Serious eye damage/irritation	Not irritating.
Respiratory/skin sensitization	Epidemiological studies showed a very low skin sensitization potential (one subject between 201 studied subjects).
Germ cell mutagenicity	There aren't known germ cell mutagenicity effects.
Genotoxicity	Not applicable
Carcinogenicity	There aren't known carcinogenicity effects.
Reproductive toxicity	There aren't known reproductive toxicity effects.
STOT-single exposure	At powder or dust form, may cause respiratory irritation with cough and sneezing.
STOT-repeated exposure	There aren't known repeated exposure effects.
Aspiration hazard	Depending of temperature process, fumes may be irritating.

**SECTION 12: Ecological information**

12.1 Toxicity

Toxicity	There aren't known ecological toxicity values.
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12.2 Persistence and degradability

Persistence and degradability	It's expected high persistence and slow degradability.
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12.3 Bioaccumulative potential

Bioaccumulative potential	Moderate to high bioaccumulative potential is expected. - Polyethylene homopolymer: logKow: 14,04 ( estimated )
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12.4 Mobility in soil

Not applicable

12.5 Results of PBT and vPvB assessment

Not applicable


12.6 Other adverse effects

Not applicable

**SECTION 13: Disposal considerations**

13.1 Waste treatment methods

Disposal considerations	Should be disposed as hazardous waste according to local legislations. The treatment and disposal should be evaluated specifically for each product. Recycle any unused portion of the material approved for use or return it to the manufacturer or supplier. For other methods, consult federal and state laws.  Product waste: Keep the product waste in their original containers and properly sealed. Disposal should be performed as established for the product.
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Packaging	Packages must be submitted to re-utilization in the working environment. Those may keep waste of the product and should be kept closed and sent to proper disposal. Recycling may be applied as long as following the relevant laws. Big bag packages are returnable and may be returned to Braskem.
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## SECTION 14: Transport information

### 14.1 UN number

UN number	Not classified as hazardous for transport.
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### 14.2 UN proper shipping name

Not applicable

### 14.3 Transport hazard class(es)

Not applicable

### 14.4 Packing group

Not applicable

### 14.5 Environmental hazards

Environmental hazards	Not hazardous.
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### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code


Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Consult regulations: - International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006 - International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.
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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations	Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the
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	Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Annex II SDS.  ECB - EUROPEAN CHEMICALS BUREAU. Directive 67/548/EEC (substances); Directive 1999/45/EC (preparations).  CLP - Commission Regulation (EC) No 1272/2008 of 16 December 2008, amending and repealing Directives 67/548/EEC and 1999/45/EC.
National regulations	Local laws and regulations should be carefully observed.
Other regulations, limitations and legal regulations	International Labor Organization C170 Chemicals Convention, from June 25th, 1990: Occupational Safety and Health - Toxic Substances and Agents.  UN Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations, 17 <sup>th</sup> Edition, 2011.  Restrictions: No use restrictions were found.

#### 15.2 Chemical safety assessment

Not applicable

### SECTION 16: Other information

Changes to previous revision	Version number: 1
Abbreviations	ACGIH - American Conference of Industrial Hygienists CAS - Chemical Abstracts Service IARC - International Agency for Research on Cancer LD50 - Lethal Dose 50% NIOSH - National Institute of Occupational Safety and Health OSHA - Occupational Safety and Health Administration TLV - Threshold Limit Value PBT - Persistent, Bioaccumulative and Toxic UN - United Nations vPvB - very Persistent and very Bioaccumulative
References to key literature and data sources	ACGIH - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS. Available at: <a href="http://www.acgih.org/TLV/">http://www.acgih.org/TLV/</a> . Access in: Oct. 2011. ECB - EUROPEAN CHEMICALS BUREAU. Directive 67/548/EEC (substances); Directive 1999/45/EC (preparations). Available at: <a href="http://ecb.jrc.it/">http://ecb.jrc.it/</a> . Access in: Oct. 2011. EPA USA. 2011. EPI Suite for Microsoft Windows, v 4.10. United States: Environmental Protection Agency, Washington. 2011. Available at: <a href="http://www.epa.gov/oppt/exposure/pubs/episuite.htm">http://www.epa.gov/oppt/exposure/pubs/episuite.htm</a> . Access in: Oct. 2011. HSDB - HAZARDOUS SUBSTANCES DATA BANK. Available at: <a href="http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB">http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB</a> . Access in: Oct. 2011. IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at: <a href="http://monographs.iarc.fr/ENG/Classification/index.php">http://monographs.iarc.fr/ENG/Classification/index.php</a> . Access in: Oct. 2011. IPCS - INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY - INCHEM. Available at: <a href="http://www.inchem.org/">http://www.inchem.org/</a> . Access in: Oct 2011.

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	<p>IUCLID - INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.I.]: European chemical Bureau. Available at: <a href="http://ecb.jrc.ec.europa.eu">http://ecb.jrc.ec.europa.eu</a>. Access in: Oct 2011.</p> <p>NIOSH - NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available at: <a href="http://www.cdc.gov/niosh/">http://www.cdc.gov/niosh/</a>. Access in: Oct. 2011.</p> <p>NITE-GHS JAPAN - NATIONAL INSTITUTE OF TECHNOLOGY AND EVALUATION. Available at: <a href="http://www.safe.nite.go.jp/english/ghs_index.html">http://www.safe.nite.go.jp/english/ghs_index.html</a>. Access in: Oct. 2011.</p> <p>REACH - REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS. Amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals Available at: <a href="http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:164:0007:0031:EN:PDF">http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:164:0007:0031:EN:PDF</a>. Access in: Oct. 2011.</p> <p>SIRETOX/INTERTOX - SISTEMA DE INFORMAÇÕES SOBRE RISCOS DE EXPOSIÇÃO QUÍMICA. Available at: <a href="http://www.intertox.com.br">http://www.intertox.com.br</a>. Access in: Oct. 2011.</p> <p>TOXNET - TOXICOLOGY DATA NETWORKING. ChemIDplus Lite. Available at: <a href="http://chem.sis.nlm.nih.gov/">http://chem.sis.nlm.nih.gov/</a>. Access in: Oct. 2011.</p>
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Other

Additional information	BRASKEM warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is responsibility of the product user enterprise to promote the training of its employees and contractors about the possible risks arising from the product.
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