Speci Purge™ SP2000

Description:

Speci Purge is a ready to use heat activated, reactive purge compound for purging extruders, dies, and melt passages. Speci Purge breaks down the thermoplastic material and lowers the melt viscosity of the resin to be purged.

Applications:

Speci Purge has been designed for the efficient purging and cleaning of injection molding, cast film, blown film, extrusion coating extruders used in processing nylon 6, ethylene-vinyl Alcohol (EVOH) copolymer, polyester resins, and polyolefin materials.

Physical Properties Data:

Description:	Translucent and opaque pellet blend
Base Polymer:	High density polyethylene
Melt Temperature:	110°C base polymer
Melt Flow Index*:	0.43 g/10min at 190°C, 2.16 kg load
Extrusion temperature range:	350 - 575°F (175 - 300°C)

FEATURES and BENEFITS

- Polyolefin based with additives that are heat activated to break down the thermoplastic material and lowering the melt viscosity of resin being purged.
- Efficient for resin changes, color changes, and preventative maintenance
- Easy to use - effective at the resident resin processing temperature and screw speed
- A ready to use purge material - no mixing or blending required
- Safe - no hazardous waste or odor generated
- Non abrasive - does not affect metal finishes
- Heat stable - can be used for start-up and shutdown
- All individual components are FDA compliant and qualified as GRAS (Generally Recognized As Safe)

Speci Purge is available in 50 lb (22.7 Kg) bags.

Purge processing tips and procedures are available

**melt flow rate is of carrier resin*

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Speci Purge™ SP2000 - Purging Procedure

Recommended Temperature Range 320-550°F (160-288°C)
There are no die size restrictions.
Screen packs or combinations of screen packs can be used from 20 to 100 mesh without significant buildup, but removing them before purging and putting new ones in after purging is suggested.

Keep the barrel mostly full of at all times to prevent oxygen from entering the barrel – excess oxygen will accelerate material decomposition of all polymers.

Tips: The best way to keep your extrusion equipment clean is preventative purging. Frequently scheduled and shorter purges will be more effective than purging only when problems are observed. By the time problems are observed carbonized, degraded material may have already formed.

Safety First: When performing these procedures, it is the machine operators responsibility to know their company's safety policy, wear appropriate protective equipment, and make sure only authorized personnel are in the area

Speci Purge Purging (color changes, material changes, general cleaning, etc)

- Slow extrusion to a drool with current resin and remove excess from hopper.
- Thoroughly clean the hopper and remove any resin residue
- Vented barrel must be capped to prevent loss of chemical vapor. Clean the vent throat before capping the vent.
- Maintain temperature and screw speed settings for the resident resin to be purged.
- Introduce Speci Purge into the extruder and purge approx. 10 to 15 times of the barrel volume. Approximate amounts are as follow:

Extruder Diameter (inches)	Purge Material (lbs)
1	4-6
1.5	8-12
2	20-35
2.5	40-60
3	65-100
3.5	90-140
4	120-200

(Above amounts are only estimates and should only be used as a starting point for your equipment. Final amount depends on condition of extruder, materials being purged, barrel volume, screw geometry, die geometry, die head, etc.)

- Speci Purge can be extruded all the way through the die opening. Purge until compound flushed out of the machine is clean and free of contamination (ie gels, black specs, color, etc)

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- Slow extruder and empty/clean the hopper of any Speci Purge residue
- Adjust temperature settings for the next production resin.
- If wanted a small amount (5-8 times the barrel volume) of LDPE or HDPE resin with low MFR can be used to flush out the Speci Purge prior to introducing the next production resin.
- Change screen pack.
- Fill hopper with next resin and run
- Continue to flush out the purge residue completely and start the next production run.

Speci Purge Shutdown Procedure

- Slow or extrusion with current resin and remove excess from hopper.
- Thoroughly clean the hopper and remove any resin residue
- Vented barrel must be capped to prevent loss of chemical vapor. Clean the vent throat by hand before capping the vent.
- Maintain temperature and screw speed settings for the resident resin to be purged.
- Introduce Speci Purge into the extruder and purge approx. 10 to 15 times of the barrel volume. Approximate amounts are as follow:

Extruder Diameter (inches)	Purge Material (lbs)
1	4-6
1.5	8-12
2	20-35
2.5	40-60
3	65-100
3.5	90-140
4	120-200

(Above amounts are only estimates and should only be used as a starting point for your equipment. Final amount depends on condition of extruder, materials being purged, barrel volume, screw geometry, die geometry, die head, etc.)

- Speci Purge can be extruded all the way through the die opening. Purge until compound flushed out of the machine is clean and free of contamination ie gels, black specs, color, etc
- Make sure the feed throat is empty to prevent bridging.
- It is acceptable to leave Speci Purge in the extruder barrel or another less-temperature sensitive resin such as polyethylene
- Stop extruder and turn off heat

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Speci Purge Start-Up Procedure

- Set temperatures to next production resin as long as it is within the specified Speci Purge range (320-550°F)
- Begin extrusion of residual Speci Purge left in extruder
- If the extrudate has specks of black, gels, or old color, add more Speci Purge to the hopper and continue to purge until clean. Residual carbon deposits, gels, black specs, etc. may have been loosened during down time.
- Slow extrusion with Speci Purge and remove excess from hopper.
- Thoroughly clean the hopper and remove any Speci Purge resin
- If wanted a small amount (5-8 times the barrel volume) of LDPE or HDPE resin with low MFR can be used to flush out the Speci Purge prior to introducing the next production resin.
- Change screen pack
- Fill hopper with next resin and run
- Continue to flush out the purge residue completely and start the next production run.

Variable RPM Purge Procedure

When you have serious problems purging you can substitute a constant extrusion speed purge for a variable RPM purge procedure. Just by knowing your maximum extruder rpm you can calculate the extruder RPM for the various stages as follows:

Sample Variable RPM Purge Procedure
1st min: 30% of max extruder RPM
2nd min: 90% of max extruder RPM
3rd min: 50% of max extruder RPM
4th min: 15% of max extruder RPM
5th min: 70% of max extruder RPM
6-10min: 15-20% of max extruder RPM
11-15min: Repeat the cycling steps of the first 5 min.
Repeat procedure if necessary

The time and the set RPM are not critical in doing a variable RPM purge. The important thing is to have changing velocities, shear rates, and flow patterns of the melt. This is accomplished by altering the rpm. At least 1min at each rpm setting is sufficient to change the flow characteristics. Periods of high output are still essential to an effective purge but varying rpms is most effective.

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MATERIAL SAFETY DATA SHEET
PRODUCT NAME: MSIT Speci Purge

DATE ISSUED: September 4, 2012 REVISION DATE: September 4, 2012 SUPERCEDES: November 10, 2009

SECTION 1 PRODUCT IDENTIFICATION AND COMPANY IDENTIFICATION

Product Name: MSIT Speci Purge SP1000 & SP2000

Chemical Name: Thermoplastic purging compound

Chemical Family: Thermoplastic polyolefins, inert minerals, inorganic additives

Product Appearance: Translucent white pellets

Company Identification: MSI TECHNOLOGY L.L.C.
3930 Ventura Drive, Suite 355
Arlington Heights, IL 60004

Emergency Phone Number: 847-255-4888

SECTION 2 HAZARD IDENTIFICATION

Caution: This material is combustible and will burn in fire and emit irritating smoke. Spilled product may create a slipping hazard. Released pellets should be kept away from storm sewers or other entry into aquatic systems. Molten resin may cause severe thermal burns.

Potential Health Effects:

Eye Contact:
-Particulates may scratch eye surface, causing irritation.

Skin Contact:
-Negligible hazard at ambient temperatures.
-Exposure to hot material may cause thermal burns.

Inhalation:
-Negligible hazard at ambient temperatures.
-Vapors, which may be formed at elevated temperatures, may be irritating to eyes and respiratory tract.

Ingestion:
-Not expected to be a hazard in normal use.

This product is not hazardous as defined in 29 CFR1910.1200

This product is not regulated as a hazardous material for transportation.

Carcinogenicity Information: None known. IARC, NTP, OHSA or ACGIH do not list ingredients as a carcinogen or potential carcinogen.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

MSIT Speci Purge is an alloy of polyolefins, inert minerals and inorganic additives.

The composition of MSIT Speci Purge is proprietary and a trade secret of MSI Technology.

Component	CAS Number	% by Weight
A proprietary blend of Polyolefin Polymers, Inert Minerals and Inorganic Additives	N/A	Proprietary

Remarks: Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

SECTION 4 FIRST AID MEASURES

NATURE OF HAZARD

Eye Contact:

-Particulates may scratch eye surface, causing irritation.

Skin Contact:

-Negligible hazard at ambient temperatures.

-Exposure to hot material may cause thermal burns.

Inhalation:

-Negligible hazard at ambient temperatures.

-Do not breathe fumes/mist which may be formed at elevated temperatures.

Ingestion:

-Not expected to be a hazard in normal use.

FIRST AID

Eye Contact:

-This product is an inert solid. If in eye, remove as one would with any foreign object and flush eyes with clean flowing water for 15 minutes. Get medical attention immediately.

-In the case of irritation caused by fumes during thermal processing, flush opened eyes under running water for up to 15 minutes. If irritation persists, consult a physician.

Skin Contact:

-For contact with hot product, do not attempt to remove material from skin. Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Get prompt medical attention.

Inhalation:

-Remove to fresh air. If respiratory distress continues, seek immediate medical attention.

Ingestion:

-Material is not expected to cause an ingestion problem. First aid is not normally required. If necessary, get medical advice.

Note to Attending Physician: If molten polymer is in contact with skin, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

PRECAUTIONS

Personal Protection:

-Where contact may occur with hot material, wear thermal resistant gloves, arm protection, and a face shield.

Ventilation:

-At conventional processing temperatures, some polymeric fumes are liberated. The airborne concentration of such polymeric fumes, which are considered a health nuisance, should be kept below 5 milligrams per cubic meter. Local exhaust ventilation of process equipment may be needed to control exposure to below the recommended exposure limit.

SECTION 5 FIRE FIGHTING MEASURES

Flashpoint: Not Established
Flammable Limits: Not Established
Autoignition Temperature: 330ºC - 410ºC (Estimated)

General Hazard:

Under fire conditions, the solid pellets will readily burn and emit a heavy, irritating smoke. Solid material may burn at or above the flashpoint. If thermally decomposed, flammable/toxic gases may be released.

Fire Fighting:

Extinguishing Media

- Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

-Use water spray to cool fire exposed surfaces.
-Respiratory and eye protection required for fire fighting personnel.
-Wear self-contained breathing apparatus.
-Wear Protective Fire Fighting Clothing.
-After extinguishing, soak the material thoroughly with water to prevent re-ignition.

Decomposition Products under Fire Conditions:

Hazardous vapors or gases may be released, such as carbon monoxide and hydrocarbon oxidation products (including organic acids, aldehydes, and alcohols)

SECTION 6 ACCIDENTAL RELEASE MEASURES

Land Spill:

-Extinguish or remove possible ignition sources.
-Recover spilled material and place in suitable container for recycle or disposal.
-Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

Water Spill:

-Recover spilled material and place in suitable container for recycle or disposal.
-Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

Notify applicable government authority if release is reportable or could adversely affect the environment.

SECTION 7 HANDLING AND STORAGE

Handling: See FIRST AID and EXPOSURE CONTROL / PERSONAL PROTECTION sections

Electrostatic Accumulation Hazard: Yes, use proper grounding procedure
Storage Temperature: Ambient temperatures. Avoid high temperatures, sparks, and open flames.
Storage/Transport Pressure: Not applicable
Loading/Unloading Temperature: Not applicable
Viscosity at Loading/Unloading Temperature: Not applicable

Store the material in a covered container to prevent contamination and degradation due to sunlight.

SECTION 8 EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Guidelines

Particulates

ACGIH 10 mg/m^3 TWA (inhalable particles)
3 mg/m^3 TWA (resperable particles)

OSHA 15 mg/m^3 TWA (total dust)
5 mg/m^3 TWA (resperable fraction)

Engineering Controls

Good general ventilation is acceptable for most conditions
Local ventilation must be used over processing equipment.

Personal Protective Equipment

Eyes/Face: Wear safety glasses with side shield. Wear face shield during thermal processing and when cleaning condensed fumes from hoods, ducts and other surfaces.

Skin Protection: Wear thermal insulating gloves when handling molten material.

Respiratory Protection: Not normally needed. Use a NIOSH/MSHA approved respirator, with combined organic vapor/dust, mist or fume cartridge, if required.

Safety shower and eye wash station should be located close to chemical exposure area in case of malfunction of process equipment.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state / appearance:	Translucent/white solid pellets
Odor:	Faint, mild hydrocarbon odor
Odor threshold:	Not available
pH:	Not applicable
Melting Point:	100 - 120ºC
Boiling Point / Boiling Point Range:	Not applicable
Flash Point:	Not available
Evaporation Rate:	Not applicable
Upper/Lower Flammability Limits:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density:	Not applicable
Specific Gravity:	0.92-1.00
Solubility:	Not soluble in water
Partial coefficient/n-Octanol/Water:	Not applicable
Auto-Ignition Temperature:	>300 ºC (estimated)

SECTION 10 STABILITY AND REACTIVITY

Stability:
-Stable under ambient conditions

Conditions to Avoid Instability:
-Store away from heat, flames, oxidizers, acids and bases.

Materials and Conditions to Avoid Incompatibility:
-Strong oxidizers, acids and bases
-Organic solvents may partially dissolve and degrade the material

Hazardous Decomposition Products:
-Combustion products may include and are not limited to carbon dioxide, carbon monoxide and hydrocarbon oxidation products (including organic acids, aldehydes, and alcohols)

Hazardous Polymerization:
-Will not occur

Conditions to Avoid Hazardous Polymerization:
-Not applicable

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

General Information:

-Material is considered biologically inert
-Exposure to high levels of heated fumes may cause irritation

Reproductive Effects: Not a reproductive toxin.

Mutagenicity Data: Not mutagenic

Teratogenicity Data: Not teratogenic

Synergistic Materials: None known

Inhalation: Processing may release vapors which are irritating to eyes, nose and respiratory tract.

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity: Biologically inert and non-toxic

Persistence / Degradability: It is stable in a landfill and in aquatic systems

Bioaccumulation / Accumulation: The pellets may accumulate in the digestive systems, if ingested by wildlife or fish.

Mobility: If released into aquatic systems, the material will float and flow with the current. The product should be recovered from the water.

Deactivating Chemicals: None required

SECTION 13 DISPOSAL CONSIDERATION

Preferred options for disposal are:

1) recycling
2) incineration with energy recovery
3) landfill

The high fuel value of this product makes option 2 very desirable for material that cannot be recycled.

Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

SECTION 14 TRANSPORTATION INFORMATION

DOT Shipping Name:	Not Regulated as a Hazardous Material for Transport
DOT Label:	Not Applicable
DOT Identification Number:	Not Applicable

SECTION 15 REGULATORY INFORMATION

TSCA:

-All ingredients in this product are listed on the TSCA Inventory.

CERCLA:

-If this product is accidentally spilled, it is not subject to any specific reporting under the requirements of CERCLA. We recommend that you contact local authorities to determine if there may be other local reporting requirements.

SARA TITLE III:

-Under the provisions of Title III, Sections 311/312 of the Superfund Amendments and Reauthorization Act, this product is classified into the following hazard categories:

NOT HAZARDOUS

-This product does not contain any chemical components with known CAS numbers that exceed the De Minimis reporting levels established by SARA Title III, Section 313 and 40 CFR 372.

For information on food-contact compliance, please contact your account manager.

Reference Number: MSIT2009001 Date Prepared: 9/4/12 Supersedes Issue Date: Original 11/10/2009

For Additional Health and Safety Information, Call: 847-255-4888
