



# OMNI-PURGE CONCENTRATE & PREMIXED

## CHEMICAL CLEANING COMPOUND

FOR PURGING ALL PLASTIC MOLDING EQUIPMENT

# INSTRUCTIONS

### GUIDELINES & SUGGESTIONS

The following guidelines consist of suggestions, alternatives and general precautions which will aid the end-user in formulating a method of application for OMNI-PURGE.

1. Should a different resin be used for cleaning than the following production resin, ensure that the cleaning resin is of equal or higher viscosity than the production material.
2. Other suggestions for cleaning resins: polyethylene may be used to clean PVC and Nylon as well as TPR; polystyrene can be used to remove polycarbonate as well as polystyrene; and acrylic may be used, in conjunction with OMNI-PURGE, to clean polycarbonate, acrylic, polyurethane and polyacetal. Very severe buildups can be removed by using a mixture of 25% OMNI-PURGE in cracked cast acrylic.
3. When changing to a new resin, it may be necessary to mix OMNI-PURGE with the new material to assist in cleaning, especially when going to a high barrel temperature as with polycarbonate and polysulphone.
4. Increase the soak-time in the barrel by 5 minute increments (up to a total of 20 minutes) should the cleaning action be marginal. Also, increase the concentration of OMNI-PURGE in the mixture by increments of 5% (up to 40% maximum) for very difficult cleaning.
5. Should the OMNI-PURGE mixture extruded from the nozzle fail to foam, which is indicative of the chemical cleaning action, check your level of addition of OMNI-PURGE in the mixture. Plug up any openings (e.g., barrel vents) since they may cause a reduction in the cleaning efficiency.
6. If "dead spots" are obvious, as in the case of extrusion equipment where "dead spots" occur between the screw and the die, increase the heat in these areas to aid in the removal of contaminates.
7. Materials with high color concentrations may require a purging mixture bearing a high level (40%) of OMNI-PURGE. Better results may be achieved by purging some natural material through the equipment prior to the application of OMNI-PURGE. Additional purging with OMNI-PURGE is also very effective.
8. Prepare all OMNI-PURGE/resin mixtures at room temperature. Never combine OMNI-PURGE with resins above 50°C/122°F in an open vessel. Above 50°C, OMNI-PURGE will react thus decreasing its efficiency. **Also, thoroughly mix OMNI-PURGE and resin until completely homogeneous; inadequate preparation will reduce the cleaning performance.**
9. Should color streaking be observed upon resumed production, examine the equipment for previously damaged parts (e.g., check valve) or stubborn contaminants. OMNI-PURGE will not solve these obvious problems.
10. To ensure clean equipment and trouble-free start-up, clean with OMNI-PURGE prior to shutdown. A preventative maintenance program will negate unnecessary production downtime and will support longer equipment life.

Not for use with epoxy resins.

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Although OMNI-PURGE is a unique purgant, it has been our experience that proper product familiarization is most difficult. However, initial application has impressed plastic processors especially when OMNI-PURGE removed stubborn and previously unexpected contaminants. It is our opinion that in many cases the use of OMNI-PURGE will eliminate machine dismantling, except for periodic overhauling. Thus even under the worst conditions, the number of times that the screws are pulled for cleaning should be drastically reduced.

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### MATERIAL SAFETY

Although an ammoniacal odor is quite obvious when using OMNI-PURGE, this product is not regarded as a health hazard. In fact, all ingredients used are not considered toxic. However, as with all chemicals, dermal contact should be avoided and personal hygiene should be observed.

- Keep containers closed when not in use.
- Wash hands after use.
- Keep away from food stuffs.
- Store in a cool, dry area.



# OMNI-PURGE PREMIXED

## SUGGESTIONS FOR PREMIXED

PPE OMNI-PURGE PREMIXED OP-2425 and OP-3550 are premixes utilizing the chemically cleaning OMNI-PURGE Concentrate and various polyethylene resins as premix carriers. OP-2425, designed for maximum operating temperatures to 425°F and OP-3550 maximum operating temperatures 550°F are the most effective purging and cleaning media available for use on thermoplastic equipment such as injection molding machines, blown film, thin film, wire and cable, blow molding extruders with screen packs, and narrow profile extruders.

## THREE FORMULAS AVAILABLE

OMNI-PURGE OP-2425 and OP-3550 provide user convenience by being ready to use, however, the OMNI-PURGE concentrate OPC-1 allows thermoplastic processors to maximize their cost savings and increases versatility in their cleaning techniques by allowing the use of variable carrier resins.

## READY FOR USE

The premix grades are used in the same manner as the OMNI-PURGE concentrate, the difference is that OP-2425 and OP-3550 do not require material preparation. Simply agitate bagged contents for product uniformity and discharge directly into the throat of the machine.

Basically, OP-2425 may be used for removing ABS, Acrylic, Urethane, SAN, Polyethylene, Propionate, Styrene, PVC, Polypropylene, Krayton, and Acetal. OP-3550 may be used for Polycarbonate, PBT, Nylon, Ryton, PET, Noryl, PTG, and Polysulphone. For process temperatures higher than 550°F, it is recommended to prepare premixes of OMNI-PURGE concentrate OPC-1 and carrier resin capable of withstanding the higher temperatures.

In some cases, when changing from a dark colored material to a different material or when switching materials of great temperature variation, it is advisable to use temperature bridging resins, e.g. Polyethylene. Initially purge 1-2 times the volume capacity of the machine with the bridging resin and follow with a mixture of OMNI-PURGE concentrate OPC-1 mixed with a bridging resin to clean your system. Although polyethylene is referenced as a bridging material, styrene and clear cracked acrylic may also be employed.

**Please note:** due to the variation of processing conditions and resin characteristics, the foregoing resin listing may overlap in premix selection. The listing only serves as a guideline. The processor must determine the most suitable purgant as well as techniques of application specific to the thermoplastic operation.



# OMNI-PURGE CONCENTRATE

## GENERAL PROCEDURES & INSTRUCTIONS

The following cleaning recommendations are general in nature since it is very difficult to be specific for each and every type of operation in the plastics industry. Therefore, it is suggested that each individual user develop application techniques specific to his operation, in order to achieve cleaning optimization. For additional information, please refer to the section of GUIDELINES. The following is based on the most common equipment found in the plastics industry.

### INJECTION MOLDING EQUIPMENT

1. Thoroughly mix 1 1/2 - 3 parts of OMNI-PURGE with 7-8 1/2 parts of the plastic resin you are currently molding or to the plastic resin you are changing over to. Total mixture should be 1 1/2-3 times the capacity of the barrel. **WARNING:** Never mix and blend more than 40% purging compound concentrate with your carrier plastics. OMNI-PURGE requires a carrier plastic, as use of pure concentrate can cause your plasticising screw to seize.
2. Retract injection unit and maintain normal molding temperatures, do not drop below melt temperature of resin in the barrel.
3. Complete operation by running the barrel empty. If new resin is used then change to operating temperature of new material. **Note:** the cleaning action is greatly reduced if the nozzle is removed.
4. Carefully, place mixture in the hopper. Direct feeding into the throat (screw inlet) is more practical. Thoroughly clean hopper and throat before and after the use of OMNI-PURGE.
5. Fill barrel slowly (**low screw r.p.m.**) until mixture is observed foaming from the nozzle.
6. Stop the screw and leave mixture in the barrel for 5-10 minutes (soak cycle).
7. Slowly purge barrel empty: repeat 5 and 6 as required .
8. Purge new plastic material through the barrel to complete cleaning and removal of the OMNI-PURGE mixture.
9. Resume production. Molded parts should be acceptable within a few minutes of operation.

### EXTRUDERS

1. Thoroughly mix 1 1/2-3 parts of OMNI-PURGE with 7-8 1/2 parts of the plastic resin you are currently molding, or the plastic resin you are changing over to. Total mixture should be 1 1/2-3 times the capacity of the barrel. **WARNING:** Never mix and blend more than 40% purging compound concentrate with your carrier plastics. OMNI-PURGE requires a carrier plastic and use of pure concentrate can cause your plasticising screw to seize.
2. Complete extrusion operation and run barrel empty. Do not drop below melt temperature of material in barrel. Leave at normal temperature if similar resin is used, but if new material is used then change to operating temperature of the new resin. **Note:** during the initial use of OMNI-PURGE there may be an excess of carbonaceous and decomposed material sufficient to plug up screens and dies. This may cause bleeding after the purging operation. Therefore initially it is advisable to remove screens and dies. If this is not desired, close monitoring of back pressure is highly recommended. Install a new or clean screen if the torque should exceed the initial reading. Further applications of OMNI-PURGE should not require the pulling of screens and dies.
3. Carefully, place mixture in the hopper. Thoroughly clean hopper and throat (screw inlet) before and after use of omni purge.
4. Fill barrel slowly (**low screw r.p.m.**) until mixture is observed foaming through nozzle.
5. Stop the screw and leave mixture in the barrel for 5-10 minutes (soak cycle).
6. Slowly purge a small amount of the OMNI-PURGE mixture for 15 seconds. Stop screw and let soak for an additional 5 minutes.
7. Slowly purge barrel empty; repeat steps 4, 5, and 6 as required.
8. Purge new plastic material through the barrel to complete cleaning and removal of the OMNI-PURGE mixture.
9. Resume production. Extrusions should be acceptable within a few minutes of operation.



## BLOW MOLDING EQUIPMENT

1. Thoroughly mix 1 1/2-3 parts of OMNI-PURGE with 7-8 1/2 parts of the plastic resin you are currently molding. Total mixture should be 2 - 4 times the capacity of the system (includes accumulators, plasticizing cylinder, die heads, manifolds, etc.)  
**WARNING:** Never mix and blend more than 40% purging compound concentrate with your carrier plastics. OMNI-PURGE requires a carrier plastic as use of pure concentrate can cause your plasticizing screw to seize.
2. Complete molding operation and run barrel empty. Do not drop below melt temperature of material in the barrel. Leave at normal operating temperature if similar resin is used or if new resin is used then change to operating temperature of the new resin. **Note:** it may be necessary to increase the heat on the accumulator and plumbing lines for large accumulator type equipment which have plumbing systems and valves (especially known to have a great number of "dead spots") to the maximum temperature before applying OMNI-PURGE.
3. Carefully, place mixture in the hopper. Thoroughly clean hopper and throat (screw inlet) before and after use of OMNI-PURGE.
4. Fill the barrel and system slowly (**low screw r.p.m.**), including all manifolds and accumulators (i.e. accumulators should be filled to full volume and operated 2 - 3 times) until the mixture is observed foaming from the nozzle.
5. Stop the screw and let soak for 5-10 minutes. **Note:** in the case of equipment with large die openings, close the die opening during the soak period. If this is not practical, bleed small amounts of the OMNI-PURGE mixture through the system every few minutes.
6. Slowly purge the system empty; repeat steps 4 and 5 as required.
7. Purge new material through the barrel to complete cleaning and removal of the OMNI-PURGE mixture.
8. Resume production. Product should be acceptable within a few minutes of operation.
2. Make a mixture of 20 – 25% OMNI-PURGE and new plastic materials. Usually 4 - 6 times the barrel volume is sufficient.
3. Raise the temperature of the hot manifold to the upper temperature of the material in the manifold. It is advised to refer to the material manufacturer's data sheets.
4. Raise the temperature of the mold to the maximum limit of the mold hot water heater.
5. Slowly extrude the OMNI-PURGE mixture through the manifold until most of the old material has been removed from the manifold.
6. Mold a full shot, stopping the molding sequence after the mold has been filled, and before the screw has returned. Leave the mold closed for 10 minutes. Open the mold and purge through the manifold the equivalent of 3 - 4 shots while adding more OMNI-PURGE mixture to the molding machine.
7. Repeat step 6 until the molded parts are free of old material and color. On some molds, 2 purges are adequate; others may require 3 - 4 purging cycles.
8. When the mold is clean, purge out all OMNI-PURGE mixture while reducing the hot manifold temperature to the desired temperature.
9. Resume molding operation, parts should be acceptable after a few shots.
10. For those molds that structurally cannot be purged through, successful cleaning has been accomplished by molding parts with the OMNI-PURGE mixture. Usually 2 - 4 shots (depending on shot size) are adequate to bring the OMNI-PURGE mixture into the hot manifold prior to the 10 minute soak. Repeat this operation until the manifold is cleaned. Generally, the procedures outlined in steps 1 through 9 apply, except where the procedure calls for purging through the mold. The same results will be accomplished by first molding two to four shots, then going into the soaking cycle. **Note:** parts molded from the OMNI-PURGE mixture will not have the same physical and chemical properties as the virgin material parts. Therefore, running of short shots is recommended.

## HOT MANIFOLD EQUIPMENT

With the variety of hot manifold equipment in use, it is not possible to write specific cleaning procedures to cover each and every type of operation. Therefore, general procedures are outlined below which will cover the average operation and can be modified by each individual user to cover his specific conditions.

1. Clean molding machine barrel as outlined in Section A (i.e. Injection Molding Equipment). It is suggested that natural material, non-colored, be used to clean hot manifolds as the effectiveness of the cleaning operation is easier to detect.

11. In those operations where it is highly desirable not to shut down the machine, successful hot manifold cleaning has been accomplished by continuing molding operations with OMNI-PURGE mixture and natural material, until the manifold is cleaned, then introducing new material. Cleaning will usually be completed within 15 to 30 minutes of operation.