

NOVACHEM

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WHAT IS **SUPERNOVA™** CX

SuperNova™ CX is NOVACHEM's brand of ammonia-free and powder-free chemical purging compound specially formulated for clear polycarbonate. It removes thermoplastic residues from cylinder walls, screws, and downstream components while eliminating post-purge haze and discoloration. *SuperNova™* CX purging compound is certified as fully compliant with all applicable FDA regulations. The only by-products of the *SuperNova™* chemical process are non-toxic gases.

PREPARING SUPERNOVA™ CX FOR USE

SuperNova™ CX Chemical Purging Compound is furnished in either *Ready-Mix* or *Concentrate* form. Use *Ready-Mix* just as it is supplied.

Use *Concentrate* mixed 1:3 (i.e., 1 lb. of Concentrate to 3 lb. of resin) with your own clear, clean, undried polycarbonate resin or regrind.

Have available 2 times the system volume of purging compound for most systems; have 5 times the system volume on hand for hot manifold installations, injection blow molding equipment, and accumulator-equipped extrusion blow molding systems. Refer to the back of this booklet to locate instructions for your specific type of equipment.

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USING SUPERNOVA™ CX IN INJECTION MOLDING EQUIPMENT

BASIC INSTRUCTIONS

I-1. **EMPTY** the machine of the production resin. Make sure all production material is cleaned out of the feed area.

I-2. **FLUSH** the machine by running clean natural undried polycarbonate (at least a full system volume of material – but no more than 4 system volumes) to push most of the residual production resin out of the machine. Natural regrind may be used but it must be clean. Run the machine empty again.

I-3. **LOAD** the machine with a full system volume of SuperNova™ CX purging compound. Fill the system until SuperNova™ CX material extrudes from the nozzle; keep the throat opening filled with purging compound.

I-4. **SOAK** the system with the screw turning at minimum controllable RPM for 10 to 20 minutes. Keep the throat full, reciprocating screws forward.

I-5. **PURGE** the system empty of the SuperNova™ CX material. If the machine was heavily contaminated, and you can see visible contamination or black specks as the last of the SuperNova™ CX purging compound empties from the machine, another purge is needed. Raise the nozzle and front zone heats about 50°F (30°C). Repeat steps I-3, I-4 and I-5.

I-6. **WAIT** 5 minutes after emptying SuperNova™ CX material from the machine, so that the last residues of the SuperNova™ CX chemical ingredients can break down. If this is a shutdown purge, stop now and cut the heats. Otherwise, verify that temperatures are set for normal operation.

I-7. **RUN** the new production material through the system until all traces of SuperNova™ CX material are removed. Then, begin normal production.

INSTRUCTIONS FOR HOT MANIFOLDS

M-1. **RAISE** mold heat and probe heats to the maximum temperature allowable for the mold. Melting the buildup of insulating polymer that has accumulated in the probe wells will require Intense heat. If permissible, shut off cooling water to the stationary (hot) half of the mold. While the mold is heating, continue with the following steps.

M-2. **EMPTY** the screw and barrel.

M-3. **SHOOT** 5 to 10 parts using natural polycarbonate resin or regrind. This will remove most of the residual production material from the system.

M-4. **EMPTY** the screw and barrel.

M-5. **RETRACT** the screw and barrel from the mold. This is very important – the screw and barrel must be pre-purged before you can clean the mold.

M-6. **PRE-PURGE** the screw and barrel with *SuperNova™* CX purging compound, using steps I-3 through I-5 of the Basic Instructions (Page 2). Then move the screw and barrel forward to the mold once again. Verify that mold temperatures have lined out at their maximum.

M-7. **LOAD** the machine with *SuperNova™* CX material. Mold shots until all parts contain fresh *SuperNova™* CX material (4 to 6 shots ought to suffice).

M-8. **SOAK** the mold 10 minutes with *SuperNova™* CX material in all cavities. The mold should be full and clamped, with the screw stopped, and the nozzle forward against the mold. Keep mold temperatures at maximum.

M-9. **EMPTY** the machine by making shots. Check the appearance of the parts for the presence of contamination that would indicate the need for another purge.

M-10. **REPEAT** steps M-7 through M-9 a second time. (In rare cases a third time may be needed.)

M-11. **RUN** parts with the next production material. When new parts are clear of *SuperNova™* CX residues, reset mold heats to operating temperature and restore cooling water flow.

INSTRUCTIONS FOR PLUNGER MACHINES

Contact NOVACHEM for detailed instructions on use of *SuperNova™* CX in plunger equipment.

INSTRUCTIONS FOR INJECTION BLOW MOLDING

Follow the instructions given for cleaning injection molding systems equipped with hot manifolds (Page 2).

USING SUPERNOVA™ CX IN EXTRUSION EQUIPMENT**BASIC INSTRUCTIONS**

E-1. **EMPTY** the extruder of the production resin. DO NOT REMOVE THE DIE. Make sure all production material is cleaned out of the feed area.

E-2. **FLUSH** the machine by running clean natural undried polycarbonate (at least a full system volume of material - but no more than 4 system volumes) to push most of the residual production resin out of the machine. Natural regrind may be used but it must be clean. Run the machine empty again.

E-3. **LOAD** the machine with a full system volume of SuperNova™ CX purging compound. Fill the system until SuperNova™ CX material emerges uniformly from the die; keep the throat opening filled with purging compound.

E-4. **SOAK** the system with the screw turning at minimum controllable RPM for 20 to 30 minutes. Keep the throat filled with SuperNova™ CX purging compound.

E-5. **PURGE** the system empty of the SuperNova™ CX material. If the machine was heavily contaminated, and you can see visible contamination or black specks as the last of the SuperNova™ CX purging compound empties from the machine, another purge is needed. Raise the heats (especially for the die and downstream plumbing) about 50°F (30°C) and heat soak the machine with the system empty for 15 minutes after temperatures have lined out. Then repeat steps E-3, E-4 and E-5.

E-6. **WAIT** 5 to 10 minutes after emptying SuperNova™ CX material from the machine, so that the last residues of the SuperNova™ CX chemical ingredients can break down. If this is a shutdown purge, stop now and cut the heats. Otherwise, verify that temperatures are set for normal operation.

E-7. **RUN** the new production material through the system until all traces of SuperNova™ CX material are removed. Then, begin normal operation.

INSTRUCTIONS FOR MULTI-LAYER DIES

Each layer of a multi-layer die can be purged separately. During the purge procedure, run a natural, non-heat sensitive material slowly through extruders not being purged.

USING SUPERNOVA™ CX IN EXTRUSION BLOW MOLDING EQUIPMENT

BASIC INSTRUCTIONS

B-1. **EMPTY** the extruder of the production resin. Make sure all production material is cleaned out of the feed area.

B-2. **FLUSH** the machine by running clean natural undried polycarbonate (at least a full system volume of material – but no more than 4 system volumes) to push most of the residual production resin out of the machine. Natural regrind may be used but it must be clean. Run the machine empty again.

B-3. **LOAD** the machine with a full system volume of *SuperNova™ CX* purging compound. Fill the system until *SuperNova™ CX* material emerges uniformly from the heads; keep the throat opening filled with purging compound.

B-4. **SOAK** the system with the screw turning at minimum controllable RPM for 30 minutes. Keep the throat filled with *SuperNova™ CX* purging compound.

B-5. **PURGE** the system empty of the *SuperNova™ CX* material. If the machine was heavily contaminated, and you can see visible contamination or black specks as the last of the *SuperNova™ CX* purging compound empties from the machine, another purge is needed. Raise the heats (especially for the heads and downstream plumbing) about 50°F (30°C) and heat soak the machine with the system empty for 15 minutes after temperatures have lined out. Then repeat steps B-3 through B-5.

B-6. **WAIT** 5 to 10 minutes after emptying *SuperNova™ CX* material from the machine, so that the last residues of the *SuperNova™ CX* chemical ingredients can break down. If this is a shutdown purge, stop now and cut the heats. Otherwise, verify that temperatures are set for normal operation.

B-7. **RUN** the new production material through the system until all *SuperNova™ CX* material is removed. Then, begin normal operation.

INSTRUCTIONS FOR SYSTEMS WITH ACCUMULATORS

A-1. Increase the shot size by 10% (if possible, move the ram back).

A-2. While **LOADING** the machine with *SuperNova™ CX* purging compound (Step B-3) run the accumulator on automatic. Operate the accumulator at least 2 – 4 times to ensure that the system is completely filled with *SuperNova™ CX* material.

INSTRUCTIONS FOR VENTED BARRELS

Because the gases released by *SuperNova™* CX are important to its cleaning effectiveness, barrel vents should be capped. Take the following steps:

V-1. **CLEAN** vent opening manually and close the vent with a cap.

V-2. Perform all steps of the Basic Instructions for the system to be purged. **VARY** the speed of the screw while loading and running *SuperNova™* CX material in the machine. This changes the speed of the material as it flows past the vent opening and ensures complete and even filling.

CAUTION: *SuperNova*[™] CX purging compound releases non-toxic gases during the cleaning process. These gases can cause pressure to build up under improvised vent caps. Use caution in capping vents and in keeping clear of vent caps during the purge.

SuperNova™ CX Purging Compound will work effectively in all processing equipment:

INJECTION MOLDING

- Instructions for screw-type injection molding machines *without* hot runner systems or vented barrels are on Page 2.
- Instructions for Hot Manifold Systems are on Page 2.
- For instructions for Plunger Machines contact NOVACHEM.
- Instructions for Injection Blow Molding machines are on Page 3.
- Further instructions for Vented Barrels are on Page 6.

EXTRUSION

- Instructions for screw-type extruders *without* multi-layer dies or vented barrels are on Page 4.
- Further instructions for multi-layer dies are on Page 4.
- Further instructions for Vented Barrels are on Page 6.

EXTRUSION BLOW MOLDING

- Instructions for extrusion blow molding machines without accumulators or vented barrels are on Page 5.
- Instructions for accumulators are on Page 5.
- Further instructions for Vented Barrels are on Page 6.

IF THERE ARE ANY QUESTIONS ABOUT USING SUPERNOVA™, CALL NOVACHEM TECHNICAL SUPPORT, TOLL FREE AT:

1-800-762-3984

WRITTEN INQUIRIES CAN BE FAXED TO US AT 1-203-367-0647.