Temperatures / Proportions

Type of Plastic		Processing-Temperature Range		Purging Temperature Range		Screw Diameter			
						< 60 mm Ø		> 60 mm Ø	
		[°C]	[°F]	[°C]	[°F]	CORATEX proportion in the Purging Mix			
						in %	in g/ kg	in %	in g/ kg
Acrylnitrile-Butadiene-Styrene Copolymer	ABS	200 - 250	390 - 480	170 - 190	340 - 375	2 - 3	25 - 35	3 - 4	35 - 50
Acrylonitrile-Copolymer	SAN	200 - 220	390 - 430	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Cellulose-Acetate	CA	220 - 260	430 - 500	190 - 230	375 - 445	2 - 3	25 - 35	3 - 4	35 - 50
PEEK	PEEK	370 - 390	700 - 735	340 - 360	645 - 680	2 - 3	25 - 35	3 - 4	35 - 50
Polyamide	PA	250 - 280	480 - 535	220 - 230	430 - 445	2 - 3	25 - 35	3 - 4	35 - 50
Polycarbonate	PC	280 - 330	535 - 625	230 - 280	445 - 535	2 - 3	25 - 35	3 - 4	35 - 50
Polyester	PET	180 - 220	355 - 430	150 - 200	300 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Polyester (linear)	CPET	230 - 300	445 - 570	200 - 250	390 - 480	2 - 3	25 - 35	3 - 4	35 - 50
Polyethylene	HDPE/ LDPE	180 - 250	355 - 480	150 - 190	300 - 375	2 - 3	25 - 35	3 - 4	35 - 50
Polymethyl-Methacrylate (Plexiglas)	PMMA	210 - 230	410 - 445	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Polyoxymethylene	POM	170 - 210	340 - 410	140 - 170	285 - 340	2 - 3	25 - 35	3 - 4	35 - 50
Polypropylenel	PP	200 - 250	390 - 480	170 - 200	340 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Polystyrene	PS	200 - 270	390 - 520	170 - 210	340 - 410	2 - 3	25 - 35	3 - 4	35 - 50
Polysulphonate	PSU	350 - 400	660 - 750	320 - 350	610 - 660	2 - 3	25 - 35	3 - 4	35 - 50
Polyvinylchloride*	PVC	160 - 180	320 - 355	140 - 160	285 - 320	2 - 3	25 - 35	3 - 4	35 - 50
Polyvinylidene Fluoride	PVDF	200 - 220	390 - 430	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Thermoplastic Polyurethane	TPU	200 - 220	390 - 430	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50

* Tech Tip: when purging a machine used for PVC, we recommend to use PP as the purging material carrier; please refer to our special application guide for more information.

Quantity required for purging mix with CORATEX and CORATEX HT

Screw dia. in mm / in inch	20 - 40 / 0.75 - 1.5	40 - 50 / 1.5 - 2	50 - 60 / 2 - 2.5	60 - 80 / 2.5 - 3	80 - 100 / 3 - 4	100 - 120 / 4 - 4.5	120 - 150 / 4.5 - 6	150 - 175 / 6 - 6.5	175 - 200 / 6.5 - 8
Recommended in kgs[1] / in lbs	0,5 - 1 / 0.3 - 2.2	1 - 3 / 2.2 - 4.3	3 - 5 / 4.3 - 7.5	5 - 10 / 7.5 - 18	10 - 25 / 18 - 35	25 - 35 / 35 - 60	35 - 70 / 60 - 117	70 - 90 / 117 - 186	90 - 150 / 186 - 280

1) Approximate values; depending on screw configuration and degree of contamination.

Suitable for all known commercially available polymers and processing temperatures up to 400°C / 750°F.

CORATEX can be as valuable for manual cleaning as it is for purging.
CORATEX is also extremely suitable as a polishing agent for tools, moulds and stainless steel surfaces.

www.coratex-emulsion.com

CORATEX ... simply better purging!

½ the Time

Our path to better purging with CORATEX

½ the no. of Strip Downs

½ the Energy

½ the Material

CORATEX purges:
Barrels and screws, including heads and dies of extruders and nozzles, hotrunner tooling of injection moulding machines, under operating conditions.

CORATEX enhances:
Fast changeover from one raw material and/or from one colour to another.

CORATEX eliminates:
Stubborn contamination and material oxidization traces.

CORATEX offers:
Low cost purging and easy handling.

CORATEX is:
Physiologically safe when used according to directions.

CORATEX is used for:
ABS, CA, PMMA, PA, PC, PET, HDPE, LDPE, PEAK, POM, PP, PS, PSU, PVC, PVDF, SAN, TPU etc.

SAINT-GOBAIN
INNOVATIVE MATERIALS

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CORATEX 09.2011

Your local distributor:

CORATEX

Purging emulsion for plastics processing machines

Cost Saving

„Made in Germany"

Effective

Versatile

CORATEX ... simply better purging!

The products: CORATEX and CORATEX HT

General information about CORATEX and CORATEX HT

CORATEX is a purging emulsion for plastics processing machines. It is primarily used for colour- and material changes, in preparation of preventive maintenance programs, for the removal of polymer degradation (“black specks”) and during machine start-up after closing down. It will give outstanding cleaning results on all relevant components such as screws and barrels, including heads and dies of extruders and nozzles, hotrunner tooling of injection moulding machines.

In addition to its purging properties CORATEX HT is very popular for manual cleaning of individual machine components.

CORATEX (Art.-No. 66261030130 - one packing unit of 10 bottles, 800 ml each bottle) and CORATEX HT (Art.-No. 66261030549 - one packing unit of 10 bottles, 800 ml each bottle) are mixed with your polymer and applied under reduced process temperatures (see right side information). For remote destinations please ask for special overseas packaging.

Cleaning with CORATEX: a successful concept that pays off!

The uniqueness of CORATEX is based on 3 pillars:

CORATEX

Cost Saving

CORATEX is an innovative material designed for efficient performance purposes.

Tight quality control for Coartex in the manufacturing process is the key precondition for reliability. This product has proven itself for decades to the benefit of plastics processors.

CORATEX is produced in a certified manufacturing environment to assure a constant product performance.

CORATEX is “Made in Germany“

Effective

Convincing cleaning results; removes extra stubborn material contamination, colours and oxidization traces.

When compared to other purging systems CORATEX achieves outstanding and economical results.

CORATEX enhances enormous time and cost savings.

CORATEX is simple to use.

Versatile

CORATEX is a concentrated liquid which brings additional manual cleaning opportunities when compared with any granular product.

It can be mixed as an additive to all types of polymers to become a purge material.

It takes just a few minutes to prepare CORATEX to work.

Application of CORATEX

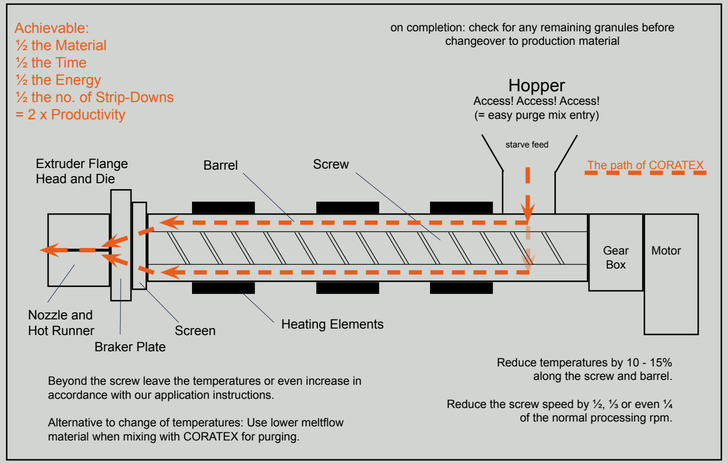
Typical applications for CORATEX:

CORATEX and CORATEX HT are concentrated liquids which can be used with all types of polymers.
Typical applications for cleaning/ purging:

- extrusion lines, such as as compounding, pipe, sheet, profile, cable, master batch
- injection moulding machines with conventional or hotrunner tooling
- film blowing and blow moulding machines
- ... and manual polishing for the final touch.

CORATEXING

One diagram covering the preparations of various machine configurations for best results for all thermoplastic raw materials. For machines using PVC please refer to our application instructions.



Process steps and cost comparison

Process steps*

Step 1	Preparation Check your machine parameters and ensure free access of purge mix into the machine hopper. The hopper should be free of loaders, driers and the like, to allow the purge mix to be fed directly onto the screw.
Step 2	Temperature settings According the specific thermoplastic material, approximately 10-15% under normal processing temperatures, see Temperatures / Proportions table. Alternatively the use of lower melt flow material as carrier for Coratex may allow the processing temperature to be left at normal processing temperature, when purging. In either case it is advisable not to reduce the die temperature.
Step 3	Preparation of the purging mixture Ensure that the polymer granules are evenly coated with Coratex and that any lumps are avoided. Also ensure that the correct ratio of Coratex to plastic granules is adhered to.
Step 4	Purging process Reduce the screw speed to 50% or lower and let the purging mixture run through.
Step 5	Flushing After purging flush your machine with virgin material.
Step 6	Control If required repeat steps 2-5 once more. In the event that the anticipated result is not achieved, a strip-down of screw, head and nozzle parts combined with manual cleaning using Coratex in neat form, may be required.
Step 7	On completion Check for and remove any remaining coated granules in the feed section and change over to normal production temperatures before commencement of the next production run of the machine.

Examples showing the value of using CORATEX

Example 1: CORATEX compared to disassembly (strip down) of an extrusion line

cost center	purging with CORATEX mix	strip down	your cost advantage
Labour	2h incl. re-start	8h incl. disassembly and manual cleaning	6h at € 200.- = €1,200.-

Example 2: CORATEX with an injection moulder having a Ø 100mm Ø single screw

cost center	purging with CORATEX mix	purging with a compounded, granular purge material	your cost advantage
Purging material	4% CORATEX mixed into 25kg of polymer approx. €80.-	purging material in granular form incl. transport cost approx. €550.-	approx. €470.- ...and far less storage space required

*** simplified; for detailed information consult your CORATEX distributor or refer to our application guidelines on www.coratex-emulsion.com**

Application Recommendations - 7 steps for perfect purging results with CORATEX and CORATEX HT

Standard process steps for purging with CORATEX

1. Preparation

Check your machine parameters and ensure free access of purge mix into the machine hopper. The hopper should be free of loaders, driers and the like, to allow the purge mix to be fed directly onto the screw.

2. Temperature settings

According the specific thermoplastic material, approximately 10-15% under normal processing temperatures, see Temperatures / Proportions table.

3. Preparation of the purging mixture

Ensure that the polymer granules are evenly coated with Coratex and that any lumps are avoided. Pour 2 to 4 % of CORATEX into the plastic granules and stir or tumble well to obtain the purging mix (see “Temperatures/ Proportions table”). Also ensure that the correct ratio of Coratex to plastic granules is adhered to.

4. Purging process

- Check whether set purging temperatures have been reached.
- Reduce the screw speed to 50% or lower and let the purging mixture run through.
- Run the prepared purging mix through the plastics processing machine and through the connected nozzles or tooling, if left on the machine. (Quantity: see chart “Quantity required of purging mix”)
- While purging, correct the temperature along the screw, if necessary, to ensure that the purge emerges with minor scalelike effect.

5. Flushing

After purging flush your machine with virgin material. We recommend you to use appr. 30 % of the next pure plasctics granulate required by the production to follow.

6. Control

Check the purging result. If required repeat steps 2-5 once more. In the event that the anticipated result is not achieved, a strip-down of screw, head and nozzle parts combined with manual cleaning using Coratex in neat form, may be required.

7. On completion

Check for and remove any remaining coated granules in the feed section and change over to normal production temperatures before commencement of the next production run of the machine.

Tech Tip per application

Add 2 - Setting of purging Temperature

Tech Tip for Injection moulding machines with conventional tooling:
Along the screw: set of purging temperature.
Along the nozzle area: keep „normal“ processing temperature

Tech Tip for Injection moulding machines with hotrunner tooling:
Along the screw: set of purging temperature.
Along the nozzle area: increase temperature of the hotrunner tooling by approx. 50 °C above normal, up to maximum heat.

Tech Tip for Extruders:
Along the extruder and the breaker-plate: set of purging temperature.
At the tooling: keep „normal“ processing temperature.
Note: If possible, remove screens before commencing with purging! Do not lower temperature in the breaker-plate region when screens are still in place!

Tech Tip for blow moulding machines and filmblowing plants:
Along the extruder and the breaker-plate: set of purging temperature.
At the tooling: keep „normal“ processing temperature.
Note: If possible, remove screens before commencing with purging! Do not lower temperature in the breaker-plate region when screens are still in place!

Add 4 - Purging process

Tech Tip for Injection moulding machines with conventional tooling:
- Lift backpressure slightly.
- Use, if possible, the total injection-stroke for purging.

Note: The purge can also be injected into the closed mould (depending on machine). This allows cleaning of the tolling at the same time.

Tech Tip for Injection moulding machines with hotrunner tooling:
- Lift backpressure slightly.
- Use, if possible, the total injection-stroke for purging.

Note: The purge can also be injected into the hotrunner tooling.

This allows cleaning of dirty channels.

Add 7 - On completion

Tech Tip for Injection moulding machines with conventional tooling:
- Set backpressure as required.
- Set srew stroke as required.

Tech Tip for Injection moulding machines with hotrunner tooling:
- Set backpressure as required.
- Set srew stroke as required.

Tech Tip for Extruders:
- Inset screens again, if required.

Temperature / Proportions

Type of Plastic		Processing-Temperature Range [°C]	Processing-Temperature Range [°F]	Purging Temperature Range [°C]	Purging Temperature Range [°F]	Screw Diameter < 60 mm Ø CORATEX proportion in the Purging Mix in %	in g/ kg	> 60 mm Ø in %	in g/ kg
Acrylnitrile-Butadiene-Styrene Copolymer	ABS	200 - 250	390 - 480	170 - 190	340 - 375	2 - 3	25 - 35	3 - 4	35 - 50
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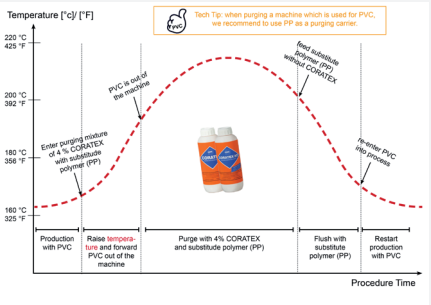
Polypropylenel	PP	200 - 250	390 - 480	170 - 200	340 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Polystyrene	PS	200 - 270	390 - 520	170 - 210	340 - 410	2 - 3	25 - 35	3 - 4	35 - 50
Polysulphonate	PSU	350 - 400	660 - 750	320 - 350	610 - 660	2 - 3	25 - 35	3 - 4	35 - 50
Polyvinylchloride*	PVC	160 - 180	320 - 355	140 - 160	285 - 320	2 - 3	25 - 35	3 - 4	35 - 50
Polyvinylidene Fluoride	PVDF	200 - 220	390 - 430	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50
Thermoplastic Polyurethane	TPU	200 - 220	390 - 430	180 - 200	355 - 390	2 - 3	25 - 35	3 - 4	35 - 50

* Tech Tip: when purging a machine used for PVC, we recommend to use PP as the purging material carrier. This enables you to reach a temperature window from 200°C up to 220°C. When rinsing with pure PP, temperature will be reduced to 165°C to 185°C. The equipment will then be ready again to operate with PVC.

For PVC operations we recommend to observe following steps:
1. Remove the nozzle and clean it manually,
2. Insert the purging compound of PP nature and 4% Coratex.
3. Operate with this compound until only remainders of PVC are leaving.
4. Increase temperature up to 200°C to 220°C and carry out the purging operations.
5. Rinse with a small quantity of pure PP while setting the temperatures as necessary for the production process of the new raw materials.
6. Set screw stroke as required.
7. You can start with the next production.



Quantity required for purging mix with CORATEX and CORATEX HT

Screw dia. in mm / in inch	20 - 40 / 0.75 - 1.5	40 - 50 / 1.5 - 2	50 - 60 / 2 - 2.5	60 - 80 / 2.5 - 3	80 - 100 / 3 - 4	100 - 120 / 4 - 4.5	120 - 150 / 4.5 - 6	150 - 175 / 6 - 6.5	175 - 200 / 6.5 - 8
Recommended in kg[1] / in lbs	0,5 - 1 / 0.3 - 2.2	1 - 3 / 2.2 - 4.3	3 - 5 / 4.3 - 7.5	5 - 10 / 7.5 - 18	10 - 25 / 18 - 35	25 - 35 / 35 - 60	35 - 70 / 60 - 117	70 - 90 / 117 - 186	90 - 150 / 186 - 280

1) Approximate values; depending on screw configuration and degree of contamination.

Suitable for all known commercially available polymers and processing temperatures up to 400°C / 750°F.

Special conditions & failure mode

How to purge under special conditions

Characteristics	Measures
Screw with small diameter (≤ 30 mm) (≤ 1 1/4")	• Keep the exact proportions of CORATEX and plastics for the purging mix (see chart "Temperatures/Proportions"), mix well to allow the purging mix to pour well. • If feeding problems occur, reduce the CORATEX proportion in the purging mix, speed up screw revolutions a little.
Equipment with de-gassing zones (vented barrels)	• In the de-gassing zones the cleaning effect of the purging mix with CORATEX is very much reduced because there is no back pressure. In many cases, the following measures can result in an improved cleaning effect: - Lower the temperature even further in the de-gassing area. - Purge according to the standard procedure. - Additionally, force-feed cleaning mix through the de-gassing openings.
Jumps in temperature e.g. from 200° C (390° F) to 320° C (610° F) or from PVC to PC or PA	• Changes of raw material with different processing temperatures as e.g. from PVC to PC or PA require a purging mix with an intermediate raw material like "PP natural" to ensure an optimal purging result.
When using high value plastic raw materials	• In those cases where high-value and expensive plastic raw materials are being processed, a further reduction of the purging costs can be achieved with good results by using a purging mix made from „PP natural" or "PP glass clear" and 3 % of CORATEX. (PP is stable up to 320 °C (610 °F) and can, therefore, be used for nearly all plastics raw materials).
Prevention	• In general we recommend prophylactic purging with CORATEX every 2-4 weeks.

How to rectify poor cleaning results

Problem	Reasons	Solutions
After purging with CORATEX further contaminations are being noticed in the plastic melt	• Extra stubborn contamination.	• Repeat purging according to standard procedure, reduce the temperature in the extruder even further.
	• Severe damage of the screw (for example grooves, pockets, porous sections).	• Exchange screw.
	• Damage on inner wall of cylinder (for example cracks, grooves, indentations).	• Rework the cylinder.
	• Unfavourable flow characteristics in head, nozzle and in the tooling area (due to construction, or through wear).	• Repair or exchange those parts producing unfavourable flow characteristics with better constructed parts.
Hot-runner system will not get clean	• Unfavourable flow characteristics in the hot-runner system (for example, pocket holes, undercuts, misalignments).	• Change construction of hot-runner system.
	• Hot-runner temperature too low.	• Raise the temperature of the hot-runner system further (depends on tooling).
Extreme contamination or colour stripes e.g. of carbon or after shutdown of the system		• Generally stop screw for 15 minutes and let purging mix take effect in extruder and hot-runner.

CORATEX HT can be as valuable for manual cleaning as it is for purging.
CORATEX HT is also extremely suitable as a polishing agent for tools, moulds and any stainless steel surfaces.