How to Implement and Easy-to Follow Purge Program & Stop Wasting Money

ASACLEAN™
Purging Compound

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Asahi Kasei Asaclean Americas

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About Asahi Kasei Corporation

Global conglomerate operating in key markets such as:

- Materials, Home & Healthcare
- HQ in Tokyo, Japan
- >$20 Billion Rev, 37,000+ employees globally

About Asaclean®

- World-wide leader in commercial purging compounds
- Serves customers in more than 70 countries

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Our Goals Today :

- **Explain the Basics of Purging**
- **Show where we can help you (6 Specific Processing Challenges)**
- **Set realistic expectations on how that happens (Step-by-Step)**

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What Are Purging Compounds?

- **Purging Compounds** - are products formulated to clean injection molding machines, extruders, and blow molding machines.
- They typically contain a base resin and other additives optimized to clean your screw, barrel, and extruder die thoroughly and quickly.
- Purging Compounds are used by processors across industries to reduce scrap & downtime.

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Use Purging to Gain a Competitive Edge

- Improves safety
- Increases machine capacity
- Lowers Maintenance costs
- Improves resource usage
- Boosts first pass yield
- Protects the environment/Reduction of plastic waste
- Reduction in overall cost of material purchase

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Variables Involved in Purge Selection

- **Process**
  - Injection/Extrusion/Blow Molding
- **Application**
  - Cleaning Die
  - Downstream equipment
  - Screw pull/push
  - Shutdown + Seal
  - Color change
  - Material change
- **Resins**
  - Commodity
  - Engineering
  - Super-Engineering
- **Type of Purge**
  - Mechanical
  - Chemical
  - Concentrate

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Mechanical Purging Compounds

- Dependent on pressure & agitation
- Additives help purging
- No soak time
- Let the machine's power do the work
- **Misconception** – Mechanical doesn't mean abrasive

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Chemical Purging Compounds

- Helps clean large dies or areas of low flow
- Endothermic chemical reaction
  - Foaming action facilitates cleaning
- Remove deposits
- Soak times of 5-30 minutes
- **Misconception-** Safe Foaming Action

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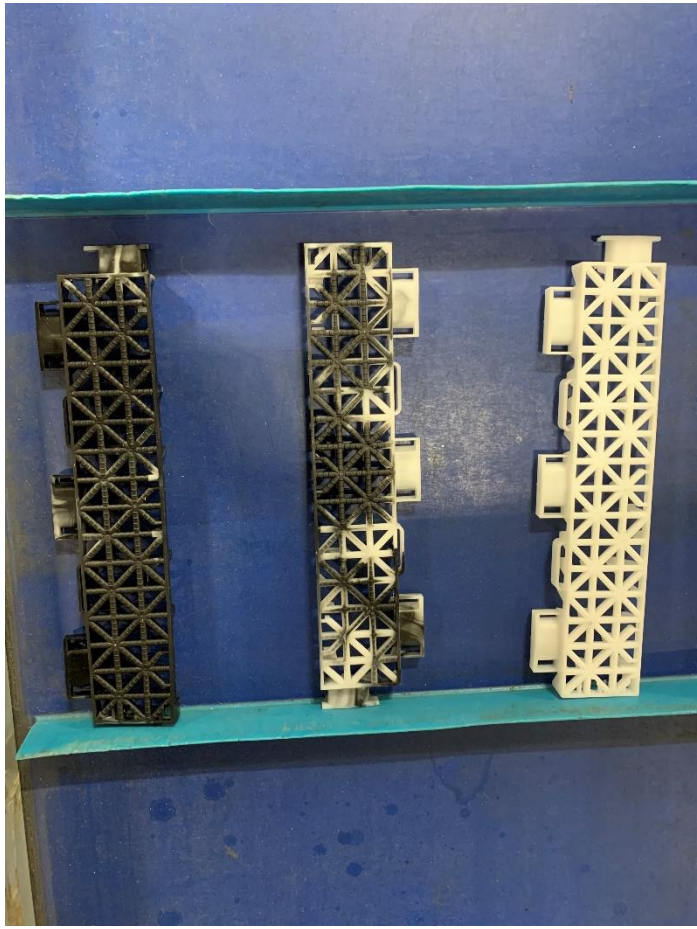
Purging Concentrate

- Super-charges your own processing resins
- Ratio can be adjusted to optimize cleaning
- Matches your production resins' MFR
- Doesn't require changing processing temps



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Injection Molding

- Clean screw & barrel, nozzle, check ring, hot runners / hot manifolds
- Increase heat where the problem is
- Most purges are moldable

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Extrusion

- Expand in low-pressure environments
- Works well in twin-screw applications
- Cleans areas close to ports and vents

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How Other Options Hurt Efficiency

- **Virgin & Regrind are NOT designed to clean**
  - Asaclean® customers save an average of 80% vs. Purging with Virgin Resin
- **Regrind isn't *really* free**
  - Asaclean® customers save an average of 83% vs. Purging with Regrind
- **DIY Options are largely ineffective & inconsistent**
  - Asaclean® customers save an average of 67% vs. Purging with In-House Purge

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Auto-Purge Settings Sabotage Your Savings

Unfortunately, there are 2 reasons why Auto-Purge usually hurts the performance of your purging compounds.

1. **One Size Doesn't Fit All**

2. **Auto-Purge doesn't Account for Cost-Per-Purge**

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6 Specific Processing Challenges

- Color Changes & Material Changes
- Contamination/Black Specks & Gels
- Clear Parts
- Scrap at Start-Up
- Hot Runner/Die Cleaning
- Screw Pulls

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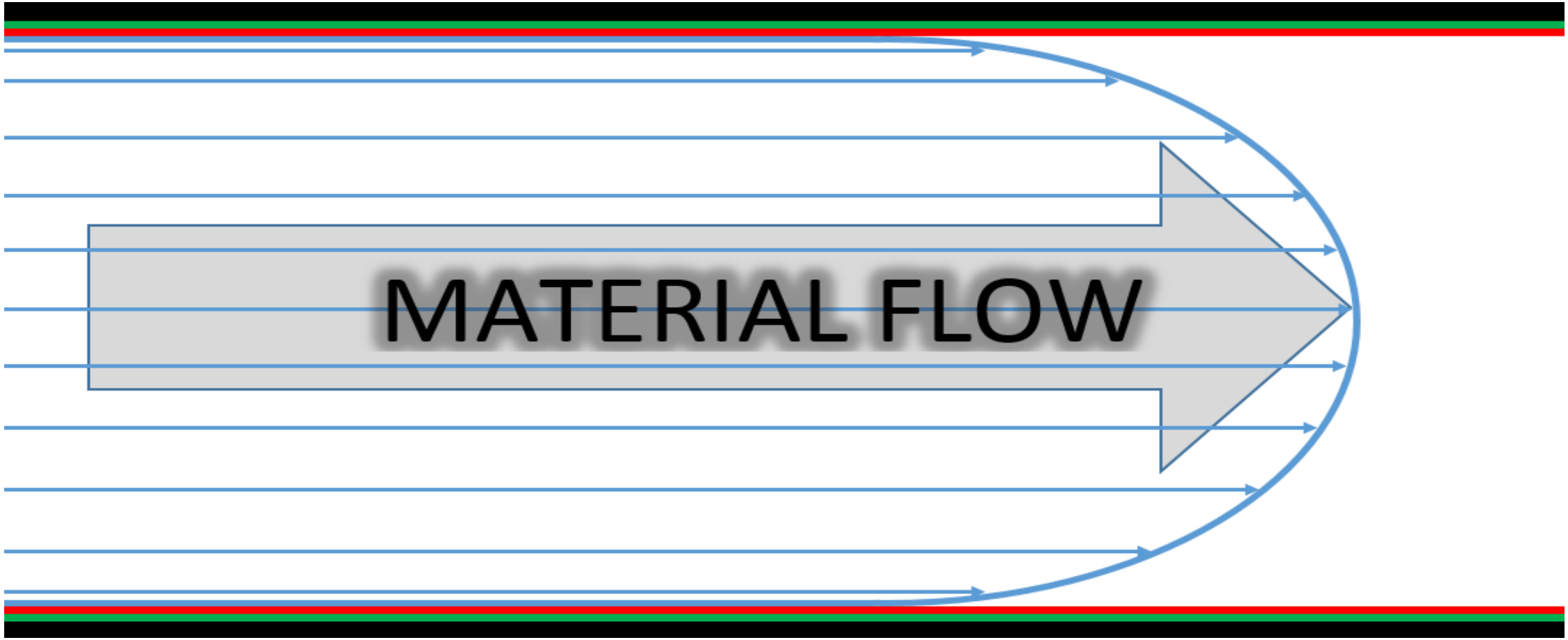
Challenge #1: Color & Material Changeovers

- Resins follow the path of least resistance



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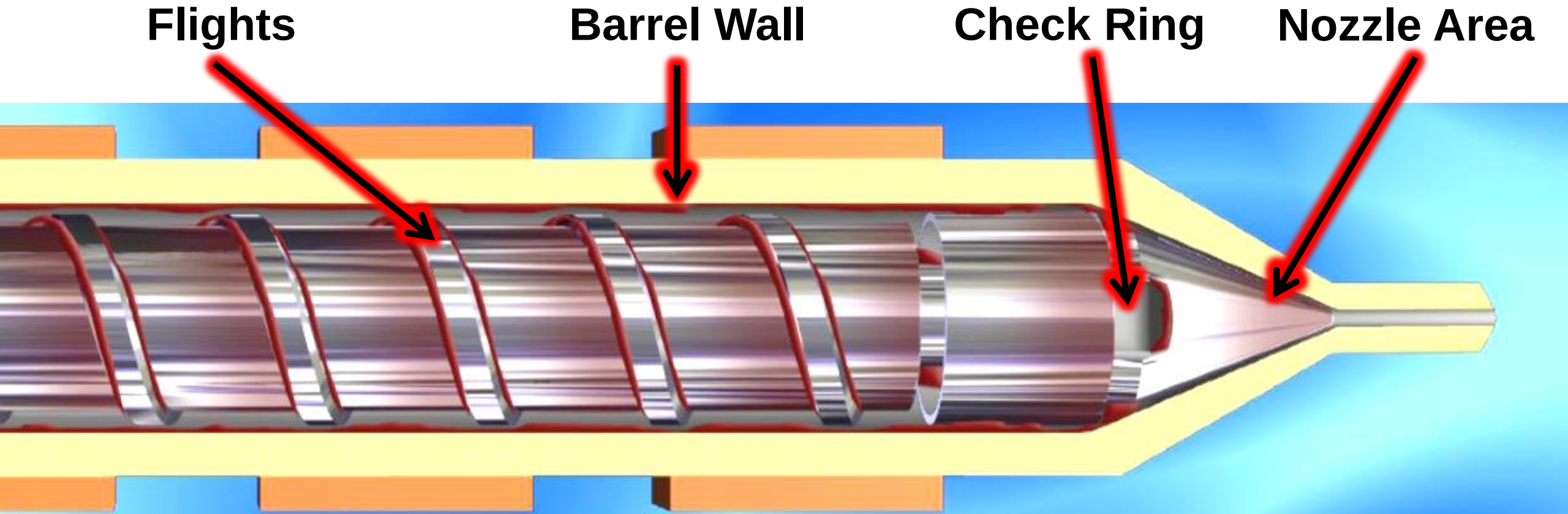
Accumulation of Layers

- Resin cannot effectively remove previous resins or carbon/color deposits



Injection Molding Color Change

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	White PP	ASACLEAN™
Changeover Time:	1.75hr	0.5hr
Machine Running Cost:	$300.00/hr	$300.00/hr
Machine Downtime Cost:	$525.00	$150.00
Amount of Material Used:	350 lbs	80 lbs
Price of Purge Material:	$0.99/lb	$4.08/lb
Purge Price:	$346.5	$326.4
Replacement Resin		
Quantity:	N/A	20 lbs
Price of Resin:	N/A	$0.99/lb
Changeover Material Cost:	N/A	$19.8
Total Purge Material Cost:	$346.50	$346.20
Cost per Changeover	$871.50	$496.20

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Injection Molding

Color Change Improved Cost Savings

Assuming 5 changeovers per week, 48 weeks per year,
240 changeovers per year per machine

Annualized Changeover Savings: **$90,072.00 = 43%**

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Challenge #2: Black Specks & Gels

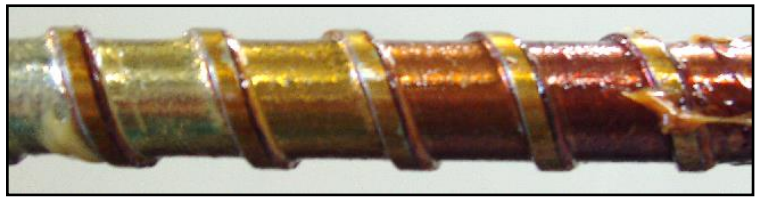
- Oxidation is a killer

After running ABS at 460ºF, the heaters were shut off and the ABS was left in the barrel

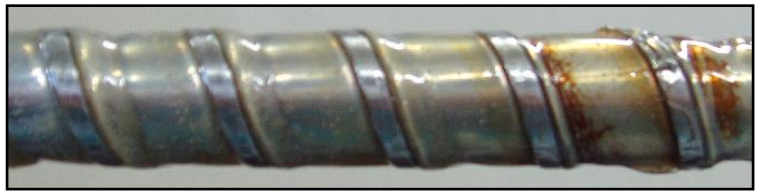
ASACLEAN™ is left in the barrel

After 1 Hour

After 5 Hours



Heaters are turned on and purged with the next resin(PS)



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Challenge #3: Clear Parts

- Clear parts need to be perfect
- Cloudiness or streaking can derail your run
- You can’t have contamination, but some resins or purges are difficult to remove
- Consider using a purge engineered for low residue
- Purging concentrate option

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Follow Direction to Maximize Efficiency

- Follow the supplier's instructions to the letter to establish your purging baseline… then experiment
- Grade or type of CPC
- Increase temperatures in areas needing extra cleaning

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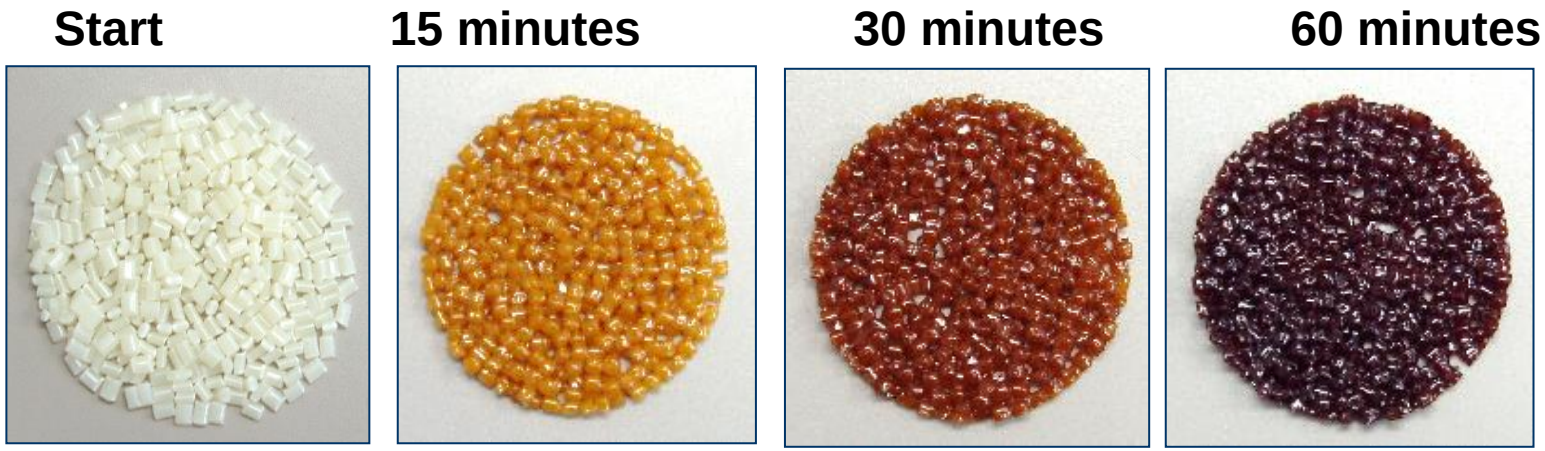
Challenge #4: Scrap at Start-Up

- **Seal during shutdowns**
- Natural ABS at 460°F (240°C)



- In a vacuum at 460°F (240°C)

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Challenge #5: Hot Runner/Die Cleaning

- Two of the most common areas of concern for processors
- Unique problems based on # of cavities or kind of die
- Resin Type and Temps

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Challenge #5: Hot Runner/Die Cleaning

- Mechanical vs Chemical Purge
- Use step by step Instructions
- Clearances / Die Gap and Gate Sizes
- Put the Heat where the Problem Is
- Shut Down & Seal

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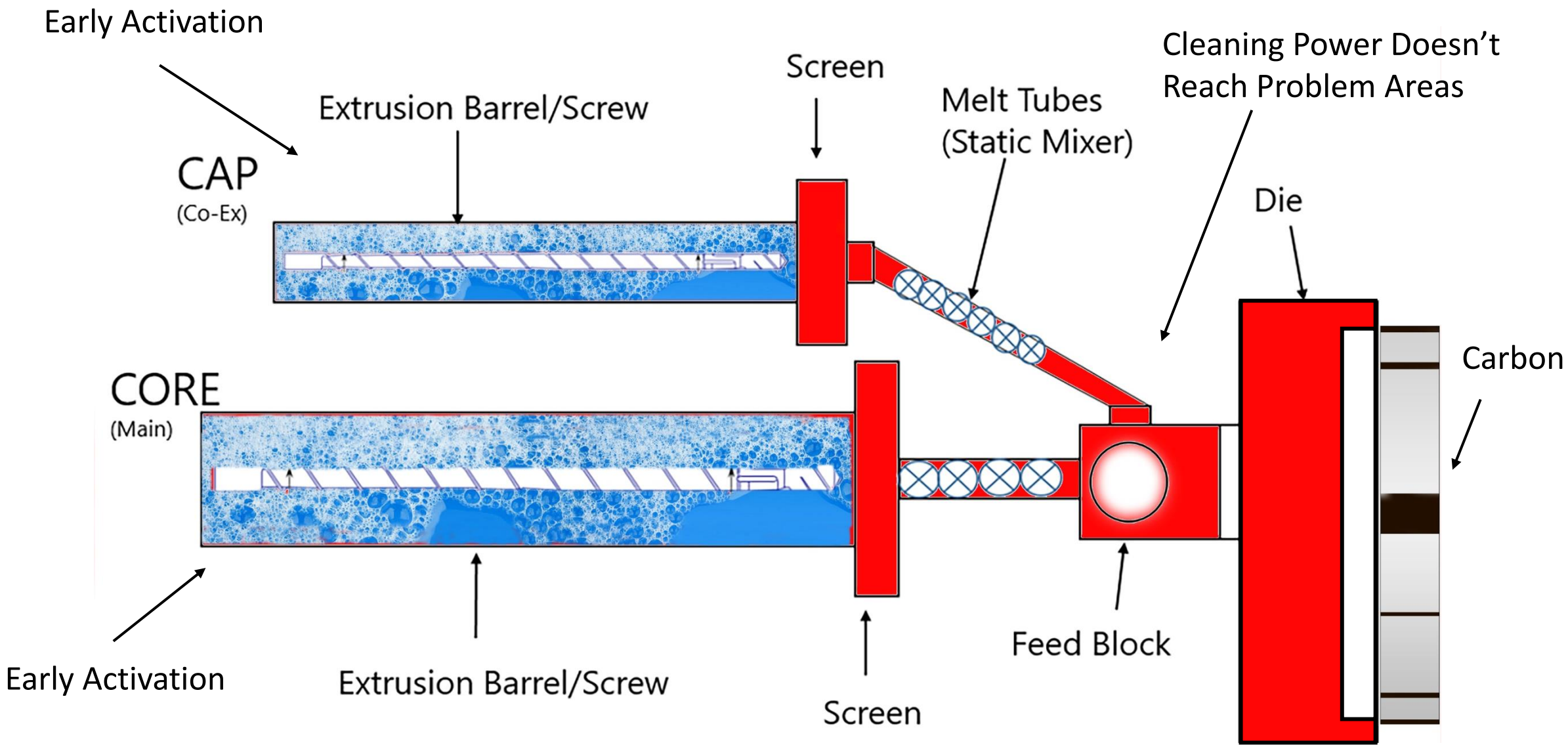

PLUS Grade Hot Runner Color Change

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Orange to White	Virgin Material	ASACLEAN™
Changeover Time:	13.5 hr	8.5 hr
Machine Running Cost:	$200.00/hr	$200.00/hr
Machine Downtime Cost:	$2,700.00	$1,700.00
Amount of Material Used:	2,557 lbs	15 lbs
Price of Purge Material:	$0.86/lb	$11.45/lb
Purge Price:	$2,199.02	$171.75
Replacement Resin		
Quantity:	N/A	625 lbs
Price of Resin:	N/A	$0.86/lb
Changeover Material Cost:	N/A	$537.50
Total Purge Material Cost:	$2,199.02	$709.25
Cost per Changeover	$4,899.02	$2,409.25

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PLUS Hot Runner Improved Cost Savings

Assuming 3 changeovers per week, 48 weeks per year,
144 changeovers per year per machine

Annualized Changeover Savings: **$358,526.88 = 50.8%**

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Easy-to-Use Solution- PLUS Grade

“This stuff was pretty shocking to me because, one, it was just so easy …and two, it cleans incredibly well….a little goes a long way.”

-Ray D.

Plant Manager, Custom Molding Shop

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Challenge #6: Screw Pulls/Pushes

- Smarter Screw Pulls
- Effective option for difficult changeovers
- Reduces required force
- Minimize manual cleaning
- Decrease overall changeover time

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Screw Pull (Injection Molding)

	Virgin Resin	ASACLEAN™
Changeover Time:	12 hr	0.25 hr
Machine Running Cost:	$85.00/hr	$85.00/hr
Machine Downtime Cost:	$1,020.00	$21.25
Amount of Material Used:	0 lb	3 lb
Price of Material:	N/A	$7.00/lb
Changeover Material Cost:	$0.00	$21.00
Cost per Changeover:	$1,020.00	$42.25

Screw pulls/month=1, months/year=12

Annual screw pull cost per machine without Asaclean = $11,733

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Injection Molding Screw Pull Cost Saving Analysis

Assuming 1 screw pull per month, 12 screw pulls per year

Annualized Screw Pull Savings per Machine: **$11,733**

Consider a Location with 30 Injection Molding Machines…

Annualized Screw Pull Savings: **$351,990 or 96%**

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What to Expect

- Introduction
- Diagnosis
- Free Sample
- Cost Savings Analysis
- Live Trial with Guidance
- Introduction of Purge Program

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Getting Started

- Consider application
- Machine count/size
- Production/quality issues
- Temperatures and resins
- Choose a compatible purge

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Consider This…

"You can't manage what you don't measure."

-Peter Drucker

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Establish a Baseline

- How many good parts do you usually make?
- What is your scrap rate?
- How much material are you using now?
- What are your total costs (including labor)?
- Understand your current results *before* you start your purge program.

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Analyze Cost Factors

- Cost per purge vs. cost per pound
- Be Consistent
- Keep track of these over time:
  - Changeover time
  - Scrap-rate
  - Production reject rate
  - Lost production due to downtime

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Cost Savings Analysis

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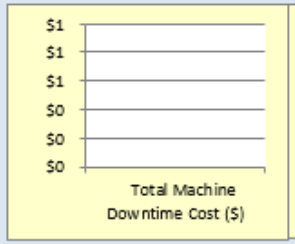
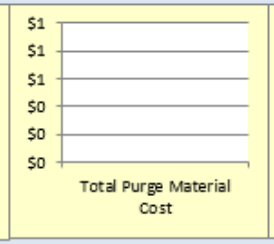
Company:	State:	Date:

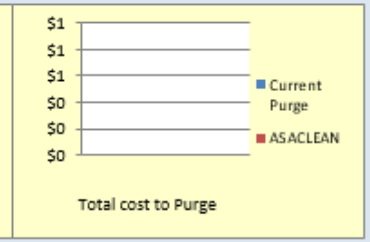
Machine Size	Barrel Capacity

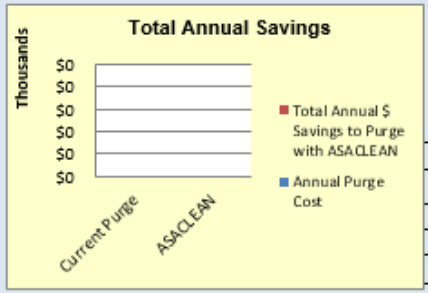
Current Purge	ASACLEAN Grade

Color:	Material:	Color:	Material:
		Current Purge	ASACLEAN
STEP 1	Machine Downtime (HR)		
X	Estimated Machine Running Cost ($)		
	Total Machine Downtime Cost ($)	$0.00	$0.00
STEP 2	Amount of Purge Material Used (LB)		
X	Purge Material Price/LB ($)		
	Total	$0.00	$0.00
Plus	Replacement Resin Qty (LB) X		
X	Resin Price/LB ($)		
	Total	$0.00	$0.00
	Total Purge Material Cost	$0.00	$0.00
	Total Cost to Purge (STEP 1 + STEP 2)	$0.00	$0.00
	Cost Savings Using ASACLEAN:		**$0.00**
			#DIV/0!









	Current Purge	ASACLEAN
Total Cost to Purge	$0.00	$0.00
Changeovers/Day		
No. of Days/Week		
No. of Week/YR		
Annual Purge Cos	$0.00	$0.00

Total Annual $ Savings to Purge with ASACLEAN **$0.00**

Conclusion: ASACLEAN Purging Compound Saves Time & Money!

Contact us at: 1-800-787-4348, or visit our website www.ASACLEAN.com

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How to Use Purging Compounds Correctly

- Understand All Purging Compounds Are Different and Have Different Instructions for Different Situations
- Different Purging Compounds Are the Best at Different Things
- Establish a Baseline Before Starting Using Asaclean®
- Work with an Asaclean® Purging Expert to Develop Your Purge Program

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Procedures Matter

- If you don’t follow the purge procedure, you won’t see the same results or savings
- This wastes time, product, and company money
- Develop consistent procedures early to see your investment pay off

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Differentiators

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Technology

- Asahi Kasei Corporation offers incredibly advanced R&D & Product Development
- Consistently superior product quality, consistency & performance
- Unrivaled product offerings

Technical Support

- Combined experience of 200+ years in injection molding & extrusion
- Process Experts provide second-to-none customer service
- Complimentary & Ongoing On-site Trials, training and support

Sales Support

- Strategically placed warehouses throughout the U.S. & Canada
- Same-day shipment available infrastructure allows for JIT delivery
- Global sales and distribution

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Summary

- Over 200 years of combined plastics processing experience
- Grades for all major resins, processes, & temperature range
- Industry-leading distribution & product availability
- Engineering expertise with backing of Asahi Kasei Corporation
- Unparalleled Customer Support
- Dramatic cost savings
- JIT delivery

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Questions? Comments?

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Want to Learn More?

For More Information

- Take advantage of our teleconferences for diagnosis and training via Skype, FaceTime, or WhatsApp.

- Visit our website- www.asaclean.com Or call one of our in-house experts at 800.787.4348 to get a personal one-on-one consultation to find the best fit for your needs.

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