

Beyond Efficiency: Pioneering Solutions for a Greener Future

ASACLEAN[™]
Purging Compound

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AsahiKASEI

ASACLEAN™
Purging Compound

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



AsahiKASEI

Goal for Today :

To transform your operations with efficiency gains and eco-friendly waste reduction

Steps to Achieve This Goal:

1. Understand the Basics of Purging
2. Translate the Basics – 6 Applications for Optimized Production
3. Kickstart Your Efficiency: How to Implement a Purge Program



Steps to a Sustainable Production

- 1. Understand the Basics of Purging**
2. Translate the Basics – 6 Applications for Optimized Production
3. Kickstart Your Efficiency: How to Implement a Purge Program

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.

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

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



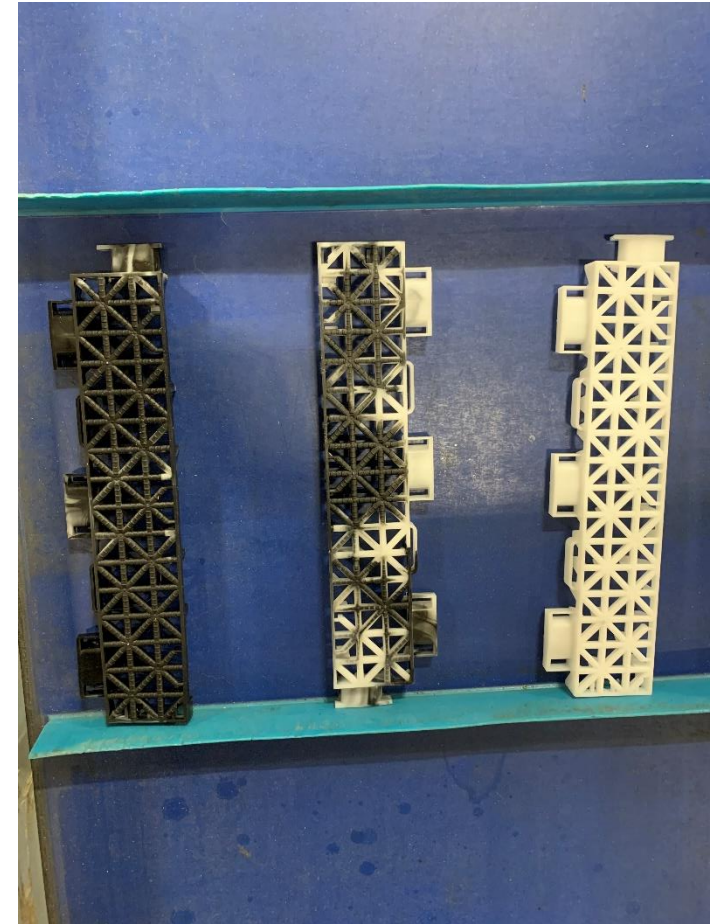
Chemical Purging Compounds

- 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



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



Injection Molding

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



Extrusion

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



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



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

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**

Steps to a Sustainable Production

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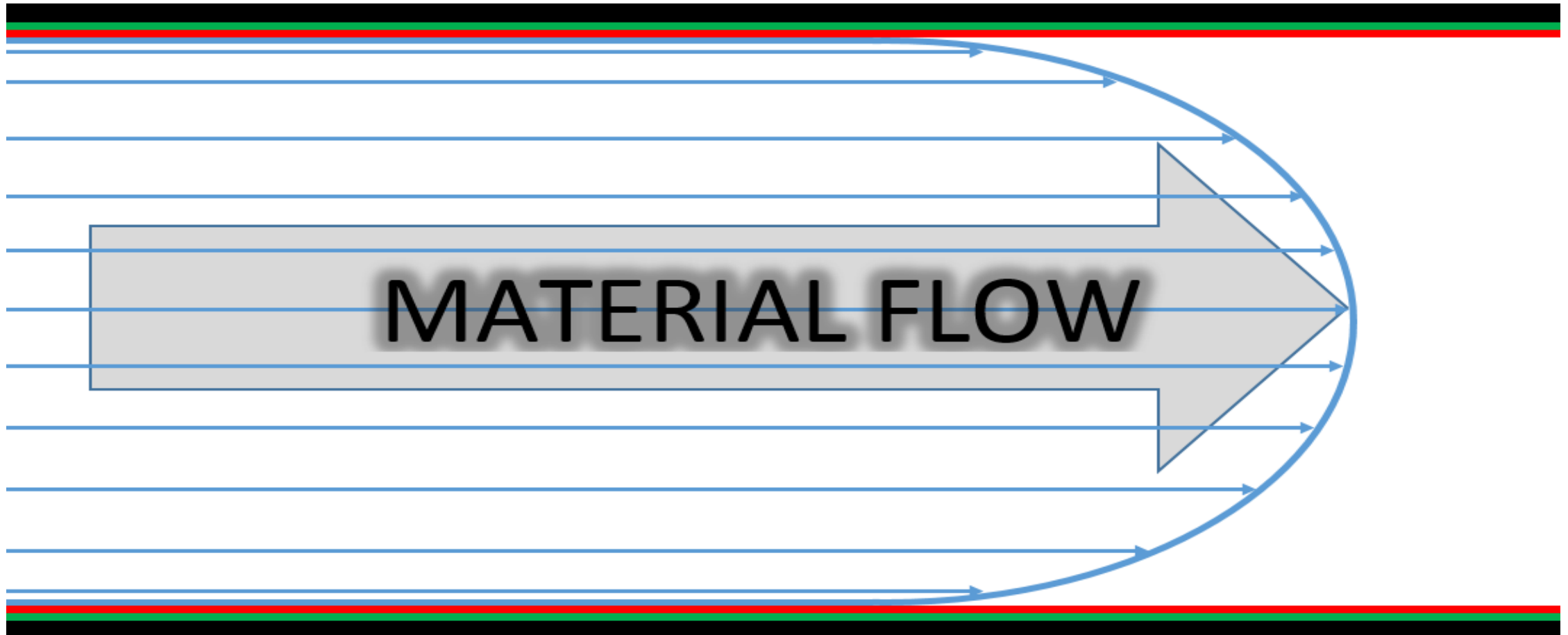
6 Key Applications for Optimized Production

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



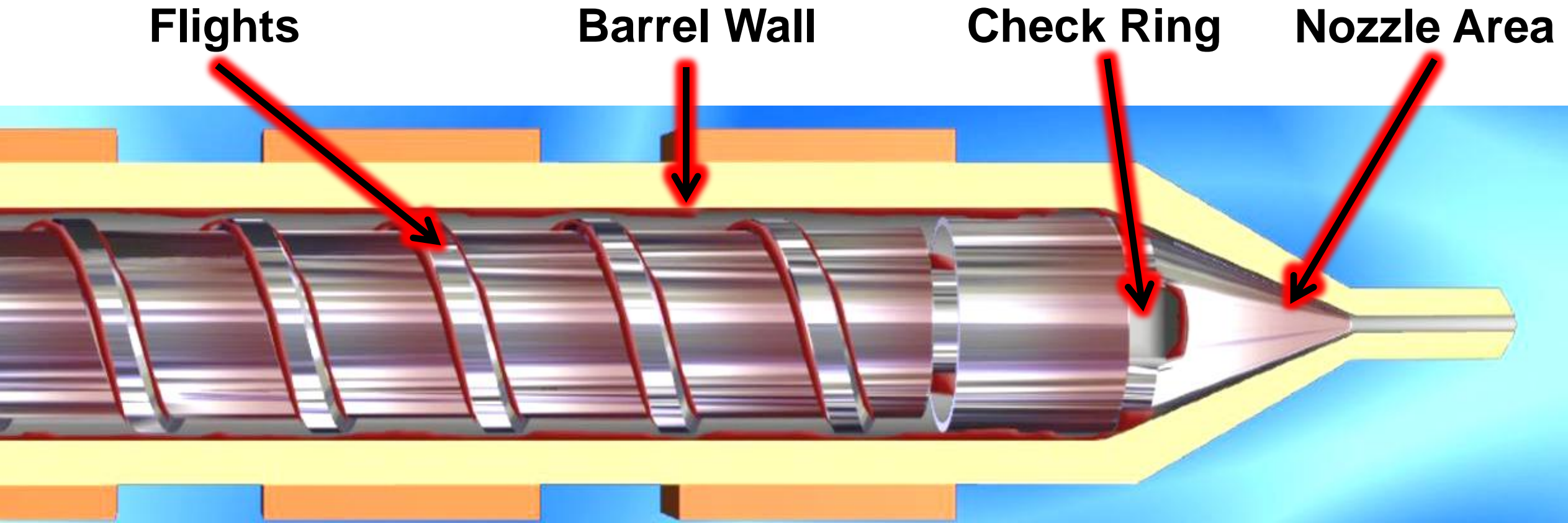
1: Color & Material Changeovers

- Resins follow the path of least resistance



Accumulation of Layers

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



Injection Molding Color Change

ASACLEAN™
Purging Compound

	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

Injection Molding

Color Change Improved Savings

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

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

Time Saved: **300** Hours

Material Saved: **60,000** Lbs.

2: Black Specks & Gels

- Oxidation is a killer

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

After 1 Hour



After 5 Hours



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



ASACLEAN™
is left in the barrel



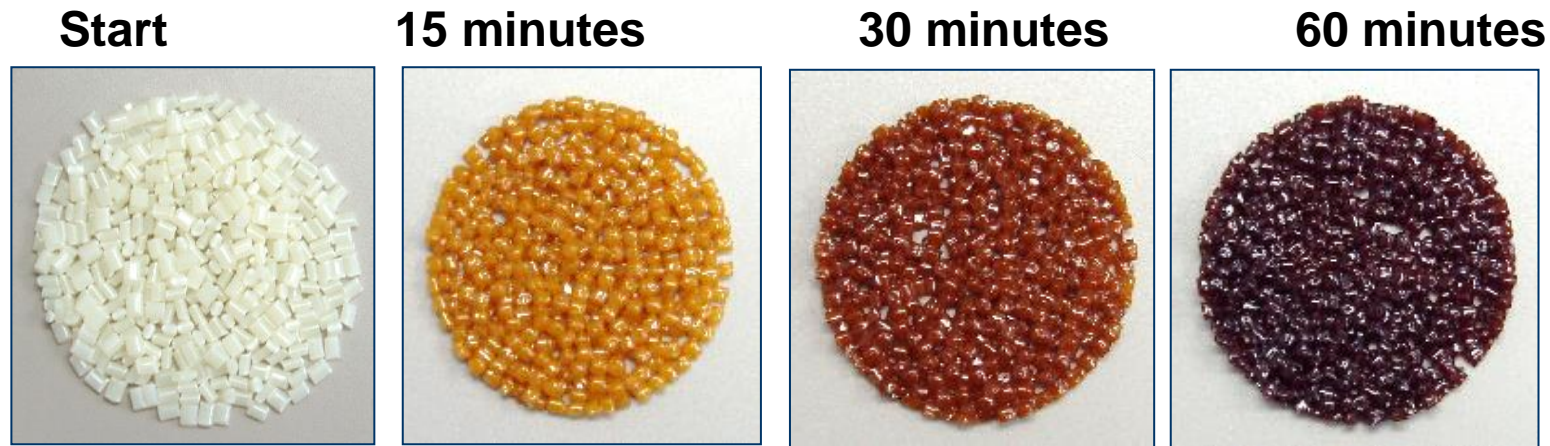
3: Clear Parts

- 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



4: Scrap at Start-Up

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



- In a vacuum at 460°F (240°C)

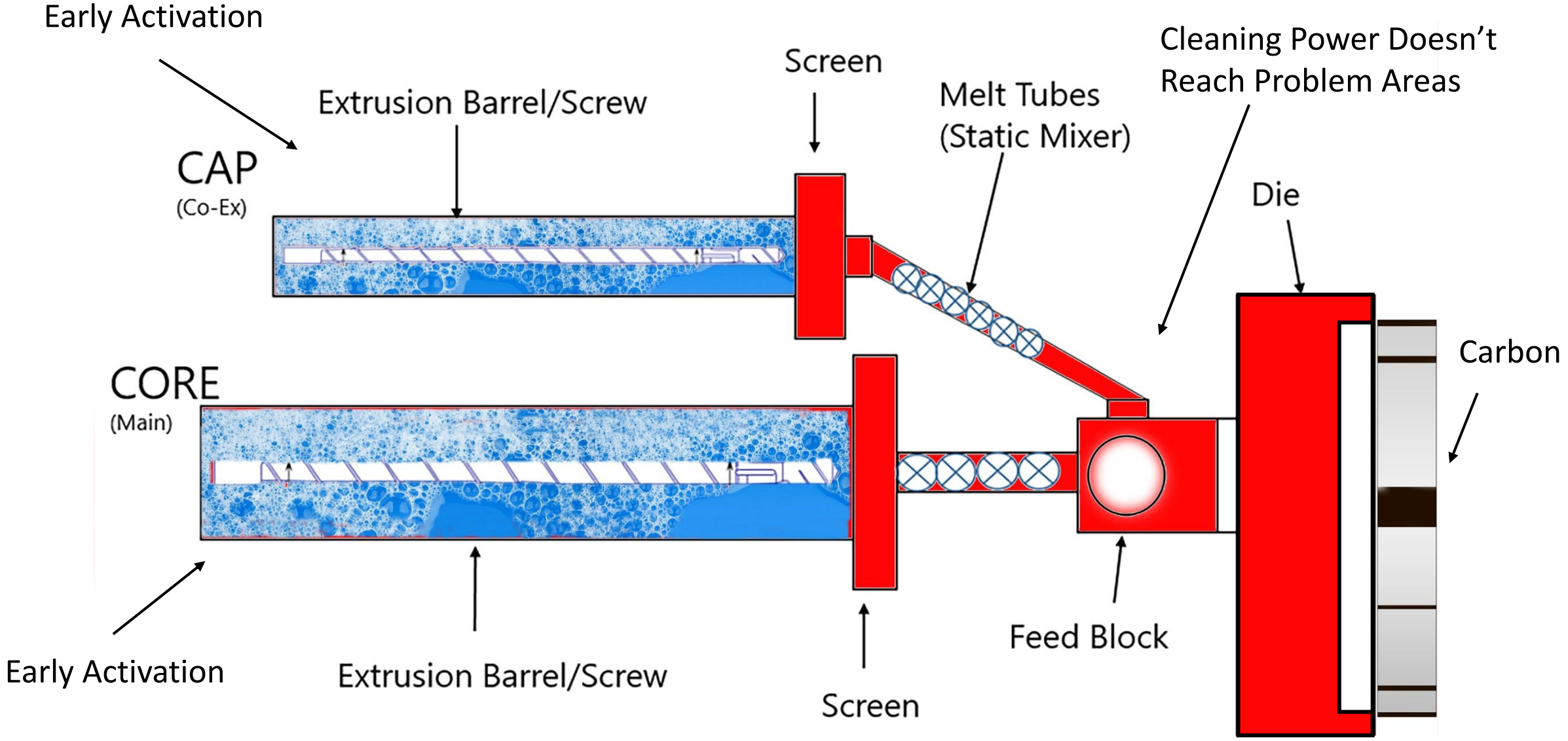


5: Hot Runner/Die Cleaning

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



ASACLEAN™ Purging Compound



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



PLUS Grade Hot Runner Color Change



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

PLUS Hot Runner Improved Savings

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

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

Time Saved: **720 Hours = 37%**

Material Saved: **276,048 Lbs. = 75%**

#6: Safer Screw Pulls/Pushes

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





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 = \$12,240

Injection Molding Screw Pull Saving Analysis

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

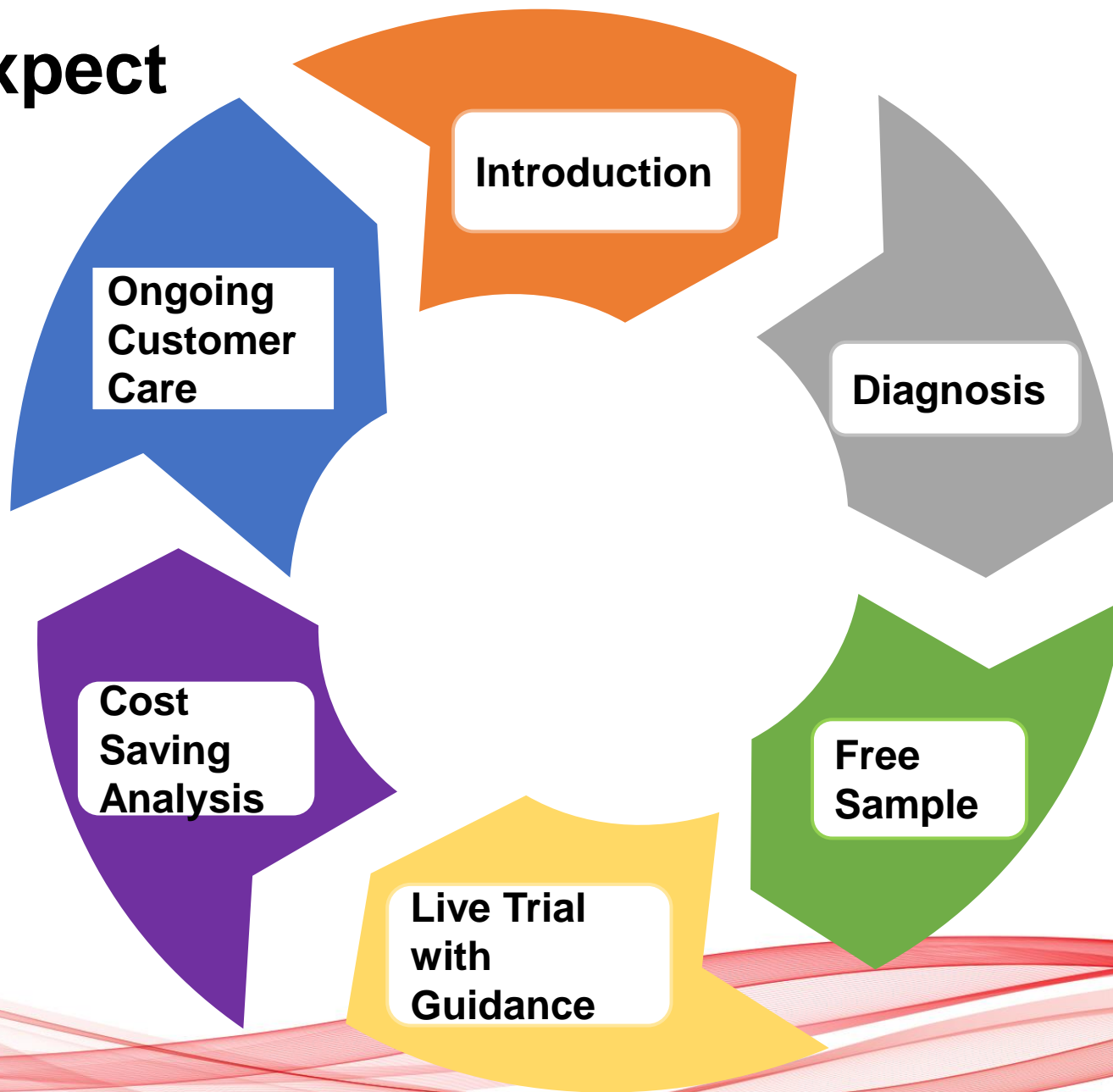
Annualized Savings per Machine: **\$11,733 = 95%**

Time Saved: **141 Hours = 98%**

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What to Expect



Diagnosis - Getting Started

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

Machine Size: Barrel Capacity:

Current Purge:

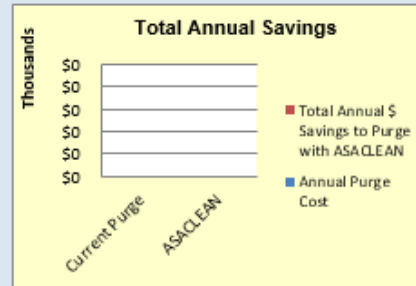
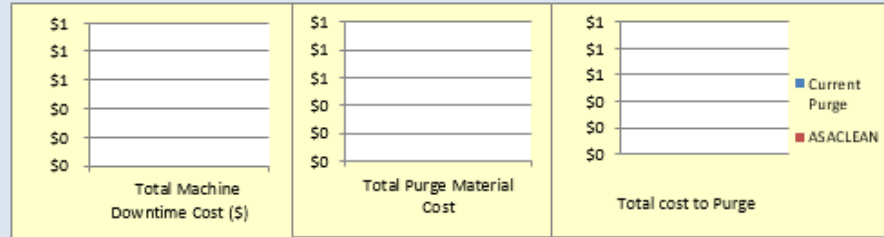
ASACLEAN Grade:

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

Total Annual \$ Savings to Purge with ASACLEAN

\$0.00

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

Other benefits for Use Purging

- 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



Conclusion: The Myth of Costly Sustainability

Moving towards a greener future doesn't have to break the bank. In fact, you stand to gain—not lose, with purging compounds.

Here's how:

- **Save Money:** Reduce the costs tied to downtime and maintenance.
- **Save Time:** Optimize your processes for quicker turnaround and higher throughput.
- **Save Material:** Minimize waste and make the most of your resources.

Questions? Comments?

Want to Learn More?

- 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](tel:800.787.4348) to get a personal one-on-one consultation to find the best fit for your needs.

**For
More
Information**