

Inputs			Processing				Lbs C8 Output					
	Lbs PTFE	Lbs C8	Step	Lbs PTFE	Lbs C8	Substep	Process sewer	Air	Hazardous waste disposal	Yarn		
Finishing (packing yarns)	89,379.5	133.2	Product	89,379.5	133.2					133.2		
			Dryer Vent		0.0							
Spinning	825,260.0	1,229.6	Product	687,819.0	1024.9	Coag/wash	973.6					
						Sintering exhaust	41.0	10.2				
			Sintered Waste	87,319.0	130.1	Coag/wash	123.6					
						Sintering exhaust	5.2	1.3				
			Pumpout	41,342.0	61.6		61.6					
			White waste	8,780.0	13.1					13.1		
			wet waste	0.0	0.0					0.0		
Cleaning	0.0	0.0	Rinse totes	0.0	0.0		0.0					
			Clean dispersion tanks	0.0	0.0		0.0					
Nonroutine discharges	1,532.0	2.3	Ruptured tote	1,532.0	2.3	Spill containment and cleanup				2.3		
Total	916,171.5	1,365.1		916,171.5	1,365.1		1,205.0	11.5	15.4	133.2		
Grand total										1,365.1		

$$\left(\frac{1205 \text{ lb}}{\text{yr}}\right) \left(\frac{\text{yr}}{50 \text{ wks}}\right) \left(\frac{\text{wk}}{5 \text{ days}}\right) = \frac{4.82 \text{ lb}}{\text{day}} \text{ in sewer}$$

2,935,000 gal/day harmonic mean flow

$$\left(\frac{4.82 \text{ lb}}{\text{day}}\right) \left(\frac{\text{day}}{2,935,000 \text{ gal}}\right) \left(\frac{453590 \text{ mg}}{\text{lb}}\right) \left(\frac{\text{gal}}{3.785 \text{ l}}\right) = 0.197 \frac{\text{mg}}{\text{l}} = 0.197 \text{ ppb SW concentration}$$

- conservatively assumes all C-8 discharged to sewer passes thru wwtp and ends up in river

Assumptions

1. The dispersion is basic, so C8 is assumed to be in salt form. The vapor pressure of the salt at 100C is ~0.07 mm Hg, so virtually none will evaporate during drying. C8 present in the dispersion applied to packing yarns is assumed to remain with the yarn.

5% makes it to the hot rolls, where it evaporates and goes to the sintering exhaust scrubber.

3. The boiling point of C8 in both acid and salt forms is ~375F. Since the yarn reaches ~620F during sintering, the 5% of C8 that remains after washing is assumed to boil off in sintering and goes to the scrubber.

4. Exhaust scrubbing is assumed to be 80%. Consequently, I assume 80% of the 5% of C8 that enters the sintering exhaust is removed and goes to the process sewer. The rest is assumed to vent out the stack.

5. Sintered yarns are assumed to be free of C8. All downstream processes, including bleaching, and processing of floc and staple, are assumed to be free of C8.

$$\left(\frac{11.5 \text{ lb}}{\text{yr}} \right) \left(\frac{\text{yr}}{250 \text{ day}} \right) = \frac{0.046 \text{ lb}}{\text{day}} \text{ in air}$$

Debbie Mulroony

0.1 - 6 $\mu\text{g}/\text{m}^3$