

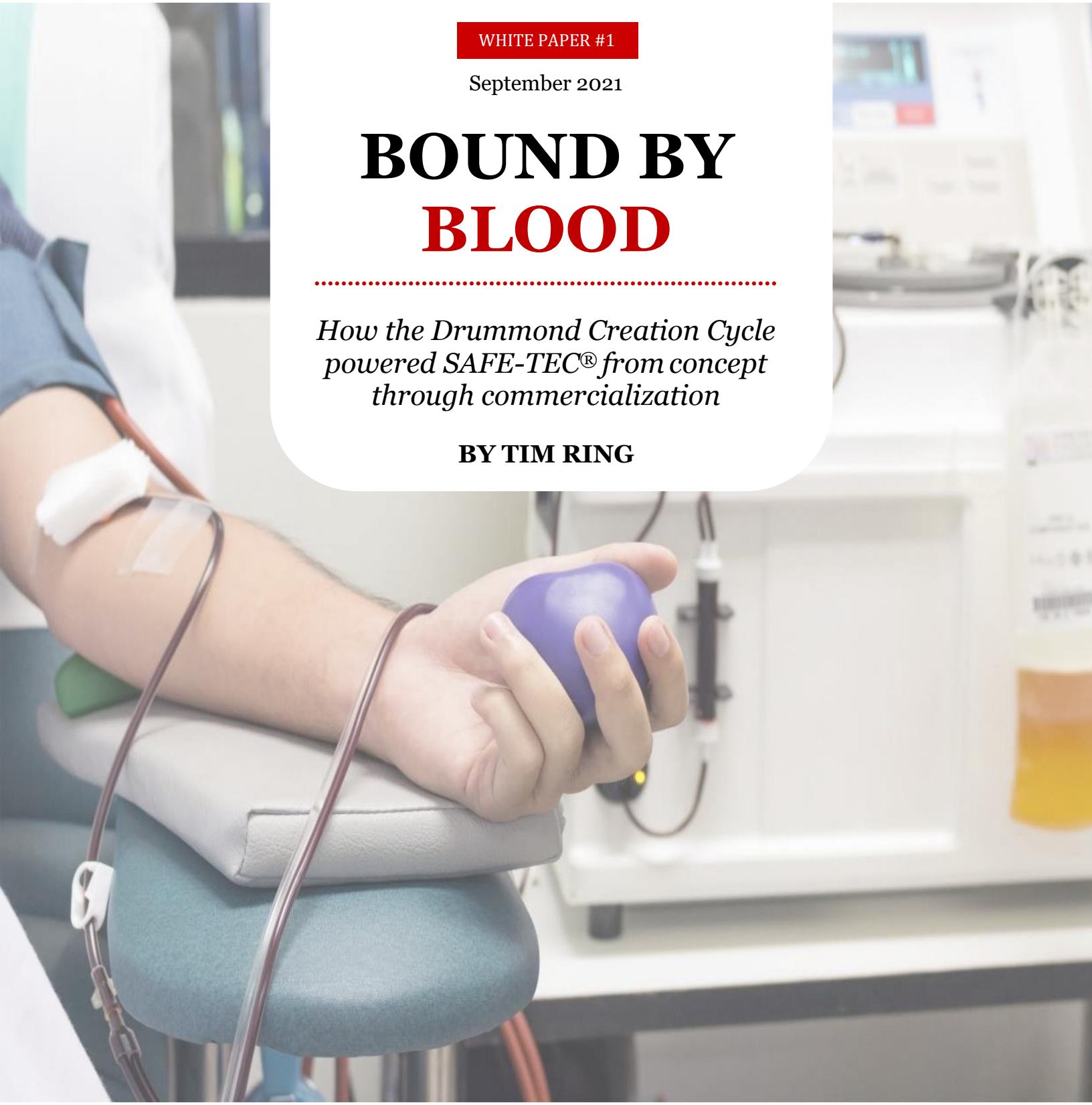
WHITE PAPER #1

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# **BOUND BY BLOOD**

*How the Drummond Creation Cycle  
powered SAFE-TEC® from concept  
through commercialization*

**BY TIM RING**



## FROM A SINGLE FINGERSTICK...

**The year is 1988.** HIV/AIDS has reached pandemic proportions with an estimated 600,000 infected worldwide with little to no means of treatment and no cure in sight.

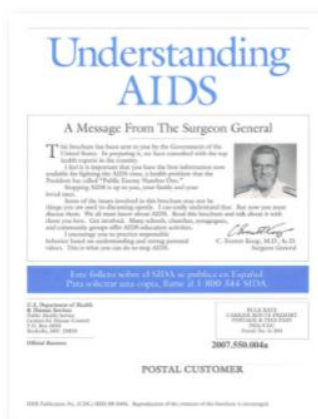
Healthcare workers live in constant fear of exposure, illness, and death due to high risk of exposure to potentially life-threatening blood borne pathogens.



One such individual, a Doctor in Maryland, passed away after contracting the disease through a laceration received while handling a broken glass capillary tube.

This tragic death resonated deeply with Bill Kendrick, Sr. and he resolved immediately that something had to be done to address this crisis. Later that same year, he created a company called **SAFE-TEC® Clinical Products.**

1988



The brochure "Understanding AIDS" is sent to every household in the US—107 million copies in all.

- » News article: [Link to the news article of mailing to every household in US about Understanding AIDS](#)
- » Brochure: [Link to brochure called Understanding AIDS](#)



Note. From "HIV/AIDS Timeline," by The Centers for Disease Control and Prevention (<https://npin.cdc.gov/pages/hiv-and-aids-timeline>)

## FROM CONCEPT...



Exposure to HIV via laceration may have been the catalyst for SAFE-TEC®, but in truth the problem was threefold:

1. traditional glass tubes would often break during manual clay sealing or when spun down in a centrifuge – lacerations were highly likely
2. the clay sealant would not withstand the high RPMs of the centrifuge and frequently “blow-out”, bathing the unit in blood and forcing the technician to reperform the entire process after a lengthy disinfection procedure, and
3. the only way to dispense the sample was to “score and snap”, which involved breaking the tube and tapping it onto a refractometer or other device; not only would this cause lacerations, but it also damaged expensive equipment and negatively affected readings.

For SAFE-TEC® to solve the problem correctly, they had to design a product that not only prevented glass shards, but exposure to blood entirely. It was at this time that Bill Kendrick, Sr. enlisted the services of Charles M. Coleman, PhD, and the expert engineers at Drummond Scientific specifically Mike Drummond, Jim Kenney, and Larry Piccirilli.

Through the combination of ingenious chemistry, relentless determination, and the deft application of decades worth of glass making experience, they invented SAFECAP®, a Triple Mylar® wrapped capillary tube with a self-sealing plug of super absorbent material along with the means of safely dispensing the sample with the SAFEPETTE® harvesting dispenser.

Drummond simultaneously devised the unique and novel machinery required for mass manufacturing. Key to that process was their in-house, fully equipped machine shop operated by expert machinists who fabricated the necessary components for these machines and continually ensured maximum up time.

## TO REALITY.

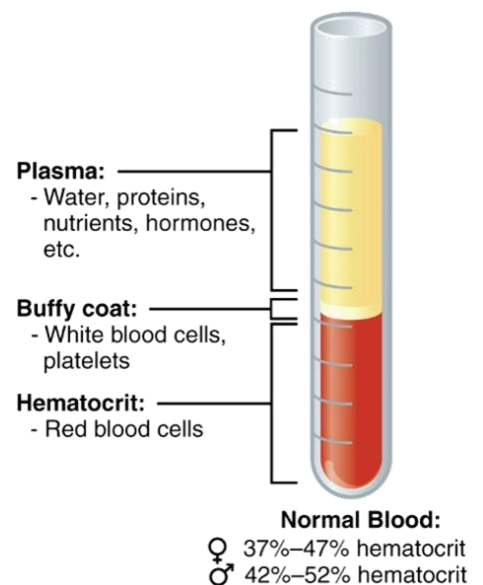


## FROM ONE TO ONE MILLION SOLD...

It was now up to SAFE-TEC® to sell it. The original plan was to target hospitals and primary care physicians. It was quickly evident that this market could not sustain a profitable business. In 1989 Bill Kendrick hired Andy Ring, a seasoned medical device executive, to spearhead the commercialization process. Andy was determined to learn who was using capillary tubes and for what purpose. That is when he discovered the Plasmapheresis Industry.

Plasmapheresis is the process of separating plasma from the other blood components, harvesting it and returning the red blood cells to the donor. The harvested plasma is used to create lifesaving plasma protein therapies for rare, chronic conditions. Before a person is allowed to donate plasma, they must be screened for suitability. A fingerstick blood sample is collected using a glass capillary tube. The tube is sealed in clay and the hematocrit is determined. The tube is then centrifuged to separate the plasma, and finally dispensed onto a refractometer for the total protein reading.

There were dozens of source plasma collection facilities with new opening every year and they all used thousands of capillary tubes a month. Andy systematically sold to them by demonstrating the merits of SAFE-TEC®'s products, while emphasizing the risk of not using them. The rest is history and to this day SAFE-TEC® products are used in over 800 source plasma centers nationwide.



*Note.* From “Components, Functions, Diseases of the Blood,” by Lecturio Medical Online Library (<https://www.lecturio.com/magazine/microscopic-anatomy-blood/>)

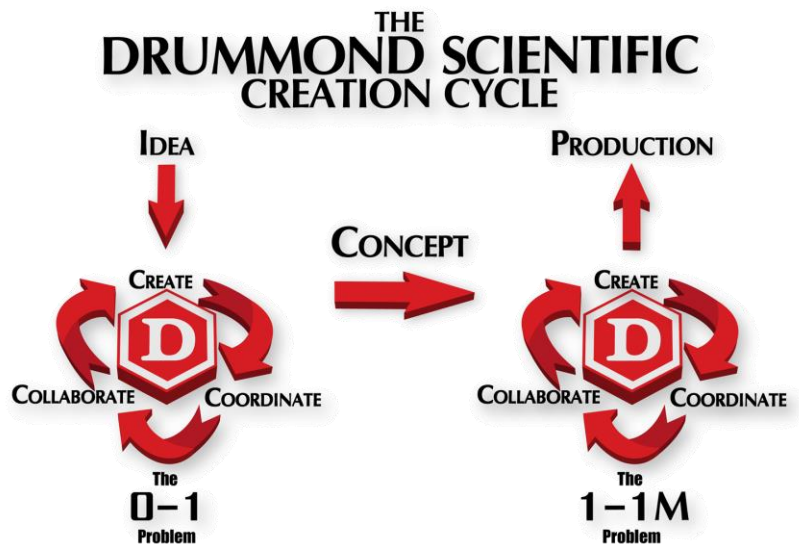
## TO ONE TO ONE MILLION MANUFACTURED.

SAFE-TEC® grew exponentially with the Plasmapheresis Industry. Annual unit sales tallied a few million tubes in the early-1990s and soared to tens of millions by the mid-2000s, pushing the limits of the original machines' capacity. Chris Spina and Scott Ferguson were tasked with building the next generation machinery.

According to Scott, "The original machines were designed to meet SAFE-TEC® forecasts with room to grow, but there was simply no keeping up with actual demand. Instead of fabricating numerous copies of the preexisting machines we increased throughput by designing new machines that could process multiple capillaries simultaneously. We can now keep up with demand and are poised to rapidly replicate these machines if needed".

Product quality is paramount to an industry so hyper focused on safety. Drummond's commitment to dependability, conscientiousness and innovation ensured SAFE-TEC® always kept its promise that exposure to blood borne pathogens from capillary tubes would be a remnant of a bygone era even with this massive boost in production.

According to the Plasma Protein Therapeutics Association (PPTA) there were 43,421,054 successful collections performed in 2020. The safe screening of those donors was made possible by Drummond's ability to rapidly scale with SAFE-TEC®.





## **TOGETHER AT LAST.**

**SAFE-TEC®** was acquired by Drummond Scientific in July 2020.

**T**he combined business unit is perfectly equipped to serve its customers with both existing and yet to be invented solutions.

**SAFE-TEC®** continues to sell **SAFECAP®**, **SAFEPETTE®** and **MICROSAFE®** to its Plasmapheresis and Point of Care customers worldwide. This perfectly exemplifies how Drummond considers its customers valued partners.

**D**rummond gladly considers customers' investment opportunities when appropriate and is ready to help your company replicate the **SAFE-TEC®** success story through manufacturing, venture partnership or a perfect combination of both.

