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CytoSorbents Corporation (NASDAQ/CTSO)

August 12, 2019

BUY: \$6.2M in Revenues and Growing

CytoSorbents reported 2Q19 numbers with another strong quarter of growth, at \$6.2M in revenues, (\$5.9M in product sales). The company closed the period with \$16M in cash, and multiple catalysts ahead. Our positive outlook remains unchanged.

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Current Price \$5.54
 Price Target \$15.00

Investment Highlights

A Significant Market Opportunity. At present, there is a lack of viable treatments for the “cytokine storm” that can cause deadly inflammation and organ failure. Sepsis, trauma, lung injury, and pancreatitis are some of the common critical conditions with which these reactions are associated, accounting for nearly half of the deaths in the intensive care unit (ICU). CytoSorb’s unique blood filtration cartridge has demonstrated proof of concept in thousands of treated patients in Europe. The simple, cost-effective, cartridge runs on virtually any platform, and as such represents a “plug and play” solution related to a multitude of inflammatory conditions from Sepsis to the cytokine storm seen with CAR-T therapies.

U.S. Expansion is Coming. CytoSorb was launched selectively in Europe (beginning in 2013) and today is available in multiple geographies. Cytosorb, the company’s flagship product, is being evaluated in the REFRESH 2-AKI trial and the REMOVE endocarditis trial. The REFRESH trial is a N=400 patient study (currently at N=109 enrolled across 24 sites). It is evaluating the safety and efficacy of CytoSorb in treating acute kidney injury after cardiac surgery complications. The complementary REMOVE Endocarditis trial, (n=250, 222 already enrolled), is focused on valve replacement and bypass surgeries. The trial is almost fully enrolled with data expected by year end 2020. We assume commercialization of Cytosorb by 2021.

Universal Technology Application. The salt grain-sized porous beads that constitute the proprietary patented technology in CytoSorb have the capability of being modified in size to filter numerous small or large contaminants. Seven devices are in the pipeline that utilizes various bead sizes to address a wide range of other indications such as blood transfusions, drug overdose, hyperkalemia, IV contrast, and more. The millions of pores and channels together create an immense surface area that absorbs and removes targeted substances from the blood while safely allowing desirable bodily fluids to pass through unaffected.

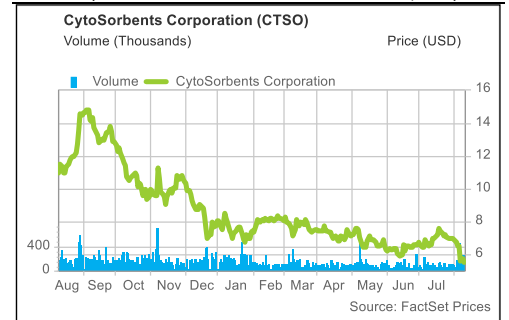
HemoDefend – RBC Program. This is the blood purification technology program. It is on track to file an IDE later this year, enabling the start of the U.S. pivotal trial.

Estimates	F2019E	F2020E	F2021E
Expenses (\$000s)	\$ 41,189	\$ 47,330	\$ 58,266
1Q March	\$ 9,475	\$ 10,886	\$ 13,401
2Q June	\$ 9,862	\$ 11,359	\$ 13,984
3Q September	\$ 10,724	\$ 12,306	\$ 15,149
4Q December	\$ 11,129	\$ 12,779	\$ 15,732

	F2019E	F2020E	F2021E
EPS (diluted)	\$ (0.55)	\$ (0.08)	\$ 0.46
1Q March	\$ (0.15)	\$ (0.02)	\$ 0.11
2Q June	\$ (0.11)	\$ (0.02)	\$ 0.11
3Q September	\$ (0.14)	\$ (0.02)	\$ 0.12
4Q December	\$ (0.14)	\$ (0.02)	\$ 0.12

EBITDA/Share	(\$0.53)	(\$0.09)	\$0.51
EV/EBITDA (x)	0.0	-0.1	0.0

Stock Data			
52-Week Range	\$5.48	-	\$14.95
Shares Outstanding (mil.)	32.3		
Market Capitalization (mil.)	\$179		
Enterprise Value (mil.)	\$159		
Debt to Capital	0%		
Book Value/Share	\$0.35		
Price/Book	15.2		
Average Three Months Trading Volume (K)	196		
Insider Ownership	5.1%		
Institutional Ownership	26.3%		
Short interest (mil.)	8.0%		
Dividend / Yield	\$0.00/0.0%		



Update - August 12, 2019 - Buy - Price Target \$15.00

Pharmaeconomic Benefit - Intensive care units tend to lose money, that could change. The expense of intensive care units (ICUs) in hospitals tends to exceed the revenues associated with treating patients. Patients, on average, spend 16 days in the ICU. Approximately 15% of a hospital's total budget is expensed for attempting to prolong the life of these critically ill patients. Mortality rates are high, with the leading cause of death being sepsis-induced organ failure. Each patient on mechanical ventilation costs about \$5,000 per day. If Cytosorb can shorten a patient's stay in the ICU by just one day (we believe it can do much better than that), it creates significant savings for hospitals versus the cost of cartridge, (we assume a price point of \$1,000 per cartridge and an average of five cartridges per treatment).

High Margins, High Hopes. The Cytosorb cartridge represents a low cost, high margin cartridge that can work on any number of platforms, easily fitting into the existing treatment paradigms. With an efficient, vertically integrated manufacturing model, the company expects blended gross margins to reach 80% at scale. By focusing on supplying cartridges (versus systems), CytoSorbents creates a high margin product opportunity closer to a specialty pharma business model versus medical technology. By developing a product that is consistent with the existing treatment paradigm, that is, the ability for a technician to connect a Cytosorb to a common dialysis or blood pump machine without extensive training, lowers the barrier for market penetration.

Safe and reliable blood transfusions. CytoSorbents' other technology, HemoDefend, is on track to improve the safety profile of blood transfusions. The pivotal human trial to support FDA approval can be expected to begin later this year (2H19). After in-vitro testing, the 25-volunteer trial will measure the ability of HemoDefend to filter non-infectious contaminants from the patients' blood. The anticipated success of this trial may place HemoDefend on the U.S. market before CytoSorb, creating a second pathway and associated catalysts.

Valuation. We use a series of therapeutic models across the various indications and geographies and project product revenues for the company out to the year 2030. In our U.S. therapeutic models, we apply a 30% risk cut (70% success probability) that both U.S. approvals and our market share forecasts can be realized. For us, valuation becomes an interesting question when we discuss the appropriate "r" risk-rate to use in our three model metrics, free cash flow to the firm (FCFF), Discounted EPS and Sum-Of-The-Parts (SOP) models, which are equal weighted, averaged and rounded to the nearest whole number. Typically for early-stage companies with no revenues, we use 30%, and for companies with established products and revenues, we use a lower 15%. Cytosorbents arguably is somewhere in the middle, as products are approved and selling in Europe but not yet in the U.S. If we select a conservative 30%, we drive a \$9.00 price target. If we select a more aggressive 15%, we arrive at a \$28.00 target. If we select a mid-point (22.5%), we derive a \$15.00 target. Given their unique position of approval in Europe, established proof of concept and a product that works, we select the mid-point of 22.5% and set our target for CytoSorbents at \$15.00.

Risk. Market risks, Regulatory risks, Financial risks and Commercialization risks.

Modeling Assumptions

1. We assume continued steady growth for Cytosorb in the current key EU direct sales countries of Germany, Austria and Switzerland.
2. We assume a selling price per cartridge of \$1,000 for direct sales and \$600 for distribution sales. We estimate that each patient will require an average of five units (CytoSorb cartridges) for sepsis treatment and three units for cardiac treatment.
3. We conservatively assume that CytoSorb can achieve a ten percent market share of the market in Germany, Austria and Switzerland, and 3% of the market in the rest of the EU by 2030.
4. Our model includes CytoSorb revenues in the U.S. for cardiac surgery and sepsis beginning in 2021 upon commercialization. To these revenues, we apply a 70% probability of success (or 30% risk cut).

Exhibit 1. CytoSorb sepsis EU direct sales (Germany, Austria, and Switzerland)

CytoSorb Distributor (Rest of EU)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EU population (Germany, Austria and Switzerland excluded)	408,580,205	409,244,211	409,908,351	410,572,616	411,237,001	411,901,499	412,566,103	413,230,806	413,895,600	414,560,479	415,225,435	415,890,462	416,555,551
Critical care population (Sepsis included)	2,083,759	2,087,145	2,090,533	2,093,920	2,097,309	2,100,698	2,104,087	2,107,477	2,110,868	2,114,258	2,117,650	2,121,041	2,124,433
Percent of patients with access to hospitals with Cytosorb	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Total patients	833,503,62	834,858,19	836,213,04	837,568,14	838,923,48	840,279,06	841,634,85	842,990,84	844,347,02	845,703,38	847,059,89	848,416,54	849,773,32
Market penetration	0.2%	0.3%	0.5%	0.5%	0.8%	1.0%	1.5%	2.0%	2.5%	3.0%	3.0%	3.0%	3.0%
Total addressable patients	1,667	2,505	4,181	4,188	6,711	8,403	12,625	16,860	21,109	25,371	25,412	25,452	25,493
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	8,335	12,523	20,905	20,939	33,557	42,014	63,123	84,299	105,543	126,856	127,059	127,262	127,466
Cost of therapy	\$ 618	\$ 624	\$ 631	\$ 637	\$ 643	\$ 650	\$ 656	\$ 663	\$ 669	\$ 676	\$ 683	\$ 690	\$ 697
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Revenue ('000)	\$ 5,153	\$ 7,819	\$ 13,183	\$ 13,336	\$ 21,587	\$ 27,297	\$ 41,422	\$ 55,871	\$ 70,651	\$ 85,766	\$ 86,763	\$ 87,771	\$ 88,790
Risk factor													
Total revenue ('000)	\$ 5,153	\$ 7,819	\$ 13,183	\$ 13,336	\$ 21,587	\$ 27,297	\$ 41,422	\$ 55,871	\$ 70,651	\$ 85,766	\$ 86,763	\$ 87,771	\$ 88,790

Source: Dawson James estimates

Exhibit 2. CytoSorb sepsis EU sales by distributorship (excluding Germany, Austria, and Switzerland)

CytoSorb Distributor (Rest of EU)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EU population (Germany, Austria and Switzerland excluded)	408,580,205	409,244,211	409,908,351	410,572,616	411,237,001	411,901,499	412,566,103	413,230,806	413,895,600	414,560,479	415,225,435	415,890,462	416,555,551
Critical care population (Sepsis included)	2,083,759	2,087,145	2,090,533	2,093,920	2,097,309	2,100,698	2,104,087	2,107,477	2,110,868	2,114,258	2,117,650	2,121,041	2,124,433
Percent of patients with access to hospitals with Cytosorb	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Total patients	833,503,62	834,858,19	836,213,04	837,568,14	838,923,48	840,279,06	841,634,85	842,990,84	844,347,02	845,703,38	847,059,89	848,416,54	849,773,32
Market penetration	0.2%	0.3%	0.5%	0.5%	0.8%	1.0%	1.5%	2.0%	2.5%	3.0%	3.0%	3.0%	3.0%
Total addressable patients	1,667	2,505	4,181	4,188	6,711	8,403	12,625	16,860	21,109	25,371	25,412	25,452	25,493
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	8,335	12,523	20,905	20,939	33,557	42,014	63,123	84,299	105,543	126,856	127,059	127,262	127,466
Cost of therapy	\$ 618	\$ 624	\$ 631	\$ 637	\$ 643	\$ 650	\$ 656	\$ 663	\$ 669	\$ 676	\$ 683	\$ 690	\$ 697
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Revenue ('000)	\$ 5,153	\$ 7,819	\$ 13,183	\$ 13,336	\$ 21,587	\$ 27,297	\$ 41,422	\$ 55,871	\$ 70,651	\$ 85,766	\$ 86,763	\$ 87,771	\$ 88,790
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Source: Dawson James estimates

Exhibit 3. CytoSorb U.S. sales for cardiac surgery

CytoSorb Cardiac Surgery US	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
US population	327,296,502	329,587,577	331,894,690	334,217,953	336,557,479	338,913,381	341,285,775	343,674,775	346,080,499	348,503,062	350,942,583	353,399,182	355,872,976
Cardiac surgery	1,009,027	1,012,054	1,015,090	1,018,126	1,021,190	1,024,254	1,027,326	1,030,408	1,033,499	1,036,600	1,039,710	1,042,829	1,045,957
Market penetration	0.09%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Total addressable patients	1,358	1,512	3,030	4,554	6,085	7,621	9,163	10,712	12,261	13,810	15,359	16,908	18,457
Estimated units per patient	3	3	3	3	3	3	3	3	3	3	3	3	3
Total filter needed	4,074	4,536	9,090	13,663	18,254	22,863	27,490	32,136	36,799	41,475	46,152	50,829	55,506
Cost of therapy	\$ 500	\$ 500	\$ 500	\$ 503	\$ 505	\$ 508	\$ 510	\$ 513	\$ 515	\$ 518	\$ 520	\$ 523	\$ 526
Change in price	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Revenue ('000)	\$ 2,037	\$ 2,268	\$ 4,545	\$ 6,866	\$ 9,218	\$ 11,604	\$ 14,022	\$ 16,474	\$ 18,958	\$ 21,450	\$ 23,943	\$ 26,436	\$ 28,929
Risk factor													
Total revenue ('000)	\$ 2,037	\$ 2,268	\$ 4,545	\$ 6,866	\$ 9,218	\$ 11,604	\$ 14,022	\$ 16,474	\$ 18,958	\$ 21,450	\$ 23,943	\$ 26,436	\$ 28,929

Source: Dawson James estimates

Exhibit 4. CytoSorb EU sales for cardiac surgery

CytoSorb Cardiac Surgery EU	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Cardiac surgery	1,509,018	1,512,036	1,515,060	1,518,090	1,521,126	1,524,169	1,527,217	1,530,271	1,533,332	1,536,399	1,539,471	1,542,550	1,545,635
Market penetration	0.09%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Total addressable patients	1,358	1,512	3,030	4,554	6,085	7,621	9,163	10,712	12,261	13,810	15,359	16,908	18,457
Estimated units per patient	3	3	3	3	3	3	3	3	3	3	3	3	3
Total filter needed	4,074	4,536	9,090	13,663	18,254	22,863	27,490	32,136	36,799	41,475	46,152	50,829	55,506
Cost of therapy	\$ 500	\$ 500	\$ 500	\$ 503	\$ 505	\$ 508	\$ 510	\$ 513	\$ 515	\$ 518	\$ 520	\$ 523	\$ 526
Change in price	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Revenue ('000)	\$ 2,037	\$ 2,268	\$ 4,545	\$ 6,866	\$ 9,218	\$ 11,604	\$ 14,022	\$ 16,474	\$ 18,958	\$ 21,450	\$ 23,943	\$ 26,436	\$ 28,929
Risk factor													
Total revenue ('000)	\$ 2,037	\$ 2,268	\$ 4,545	\$ 6,866	\$ 9,218	\$ 11,604	\$ 14,022	\$ 16,474	\$ 18,958	\$ 21,450	\$ 23,943	\$ 26,436	\$ 28,929

Source: Dawson James estimates

Exhibit 5. CytoSorb U.S. sales for sepsis

CytoSorb Sepsis US	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
US population	327,296,502	329,587,577	331,894,690	334,217,953	336,557,479	338,913,381	341,285,775	343,674,775	346,080,499	348,503,062	350,942,583	353,399,182	355,872,976
Severe sepsis patients	981,890	988,763	995,684	1,002,654	1,009,672	1,016,740	1,023,857	1,031,024	1,038,241	1,045,500	1,052,825	1,060,198	1,067,619
Market penetration	0.1%	0.2%	0.2%	0.3%	0.3%	0.5%	0.7%	1.0%	1.5%	2.0%	2.5%	3.0%	3.0%
Total addressable patients	1,003	2,019	4,039	6,058	8,077	10,100	12,123	14,146	16,169	18,192	20,215	22,238	24,261
Estimated units per patient	5	5	5	5	5	5	5	5	5	5	5	5	5
Total filter needed	5,015	10,095	20,190	30,285	40,380	50,475	60,570	70,665	80,760	90,855	100,950	111,045	121,140
Cost of therapy	\$ 2,500	\$ 2,525	\$ 2,550	\$ 2,575	\$ 2,600	\$ 2,625	\$ 2,650	\$ 2,675	\$ 2,700	\$ 2,725	\$ 2,750	\$ 2,775	\$ 2,800
Change in price	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Revenue ('000)	\$ 12,533	\$ 25,494	\$ 50,988	\$ 76,482	\$ 101,976	\$ 127,470	\$ 152,964	\$ 178,458	\$ 203,952	\$ 229,446	\$ 254,940	\$ 280,434	\$ 305,928
Risk factor													
Total revenue ('000)	\$ 8,773	\$ 17,846	\$ 35,692	\$ 53,538	\$ 71,384	\$ 89,230	\$ 107,076	\$ 124,922	\$ 142,768	\$ 160,614	\$ 178,460	\$ 196,306	\$ 214,152

Source: Dawson James estimates

Valuation. We use a series of therapeutic models across the various indications and geographies and project product revenues for the company out to the year 2030. In our U.S. therapeutic models, we apply a 30% risk cut (70% success probability) that both U.S. approvals and our market share forecasts can be realized. For us, valuation becomes an interesting question when we discuss the appropriate "r" risk-rate to use in our three model metrics, free cash flow to the firm (FCFF), Discounted EPS and Sum-Of-The-Parts (SOP) models, which are equal weighted, averaged and rounded to the nearest whole number. Typically for early-stage companies with no revenues, we use 30%, and for companies with established products and revenues, we use a lower 15%. Cytosorbents arguably is somewhere in the middle, as products are approved and selling in Europe but not yet in the U.S. If we select a conservative 30%, we drive a \$9.00 price target. If we select a more aggressive 15%, we arrive at a \$28.00 target. If we select a mid-point (22.5%), we derive a \$15.00 target. Given their unique position of approval in Europe, established proof of concept and a product that works, we select the mid-point of 22.5% and set our target for CytoSorbents at \$15.00.

Exhibit 6. FCFF Model

Average \$	15
Price Target \$	15
Year	2019

DCF Valuation Using FCF (min):

units ('000)	2018A	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
EBIT	(17,830)	(13,372)	(3,857)	15,444	42,664	85,228	150,317	254,761	318,004	359,202	389,831	409,140	405,663
Tax Rate	0%	5%	8%	10%	12%	15%	18%	21%	24%	28%	33%	33%	33%
EBIT (1-t)	(17,830)	(12,703)	(3,549)	13,899	37,544	72,444	123,260	201,261	241,683	258,625	261,186	274,124	271,794
CapEx	(493)	(543)	(597)	(657)	(722)	(794)	(874)	(961)	(1,057)	(1,163)	(1,279)	(1,407)	(1,548)
Depreciation	391	138	-	-	-	-	-	-	-	-	-	-	-
Change in NWC	-	-	-	-	-	-	-	-	-	-	-	-	-
FCF	(17,932)	(13,108)	(4,146)	13,243	36,822	71,649	122,386	200,300	240,626	257,462	259,907	272,717	270,246
PV of FCF	(21,967)	(13,108)	(3,384)	8,825	20,031	31,818	44,366	59,274	58,129	50,772	41,840	35,839	28,991
Discount Rate	22.5%												
Long Term Growth Rate	1%												
Terminal Cash Flow	1,269,530												
Terminal Value YE2030	136,190												
NPV	499,582												
NPV-Debt	-												
Shares out ('000)	33,417	2030E											
NPV Per Share	15												

Source: Dawson James estimates

Exhibit 7. Discounted EPS Model

Current Year	2019
Year of EPS	2030
Earnings Multiple	15
Discount Factor	22.5%
Selected Year EPS	8.13
NPV	13.09

Source: Dawson James estimates

		Discount Rate and Earnings Multiple Varies, Year is Constant						
		0	5%	10%	15%	20%	25%	30%
Earnings Multiple	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5	23.78	14.25	8.74	5.47	3.49	2.27	
	10	47.55	28.51	17.48	10.95	6.99	4.54	
	15	71.33	42.76	26.22	16.42	10.48	6.81	
	20	95.11	57.01	34.96	21.89	13.97	9.08	
	25	118.89	71.27	43.71	27.37	17.47	11.35	
	30	142.66	85.52	52.45	32.84	20.96	13.62	
	35	166.44	99.78	61.19	38.31	24.45	15.88	

Source: Dawson James estimates

Exhibit 8. Sum of the Parts Model

CytoSorbents	LT Gr	Discount Rate	Yrs to Mkt	% Success	Peak Sales (MMs)	Term Val
CytoSorb - Sepsis Direct Sales(EU)	1%	22.5%	0	70%	\$151	\$701
NPV						\$7
CytoSorb - Sepsis Distributor (EU)	1%	22.5%	0	70%	\$88	\$408
NPV						\$4
CytoSorb (Cardiac surgery US)	1%	22.5%	2	50%	\$68	\$318
NPV						\$1.43
CytoSorb (Cardiac surgery EU)	1%	22.5%	0	70%	\$17	\$79
NPV						\$0.7
CytoSorb (Sepsis US)	1%	22.5%	4	50%	\$271	\$1,262
NPV						\$3.8
Net Margin						45%
MM Shrs OS (2030E)						33
Total						\$16

Source: Dawson James estimates

Risk Analysis

Market Share Risk: CytoSorbents' potential inability to further grow product sales in the EU will hinder its profitability as more capital is invested in clinical trials to bring CytoSorb to the U.S. market. The company's product represents a new treatment for critical care patients that may take longer for adoption than predicted.

Regulatory Risk: There may be certain regulatory risks related to CytoSorb approval in the U.S.

Commercial Risk: There is no guarantee that the company will be able to develop and expand sales operations to offset research and development costs. Delays in U.S. commercialization will be negatively reflected in its valuation.

Financial Risk: The company should be expected to raise capital in the near term. We assume a raise and dilution, but there is no guarantee that market conditions will be favorable.

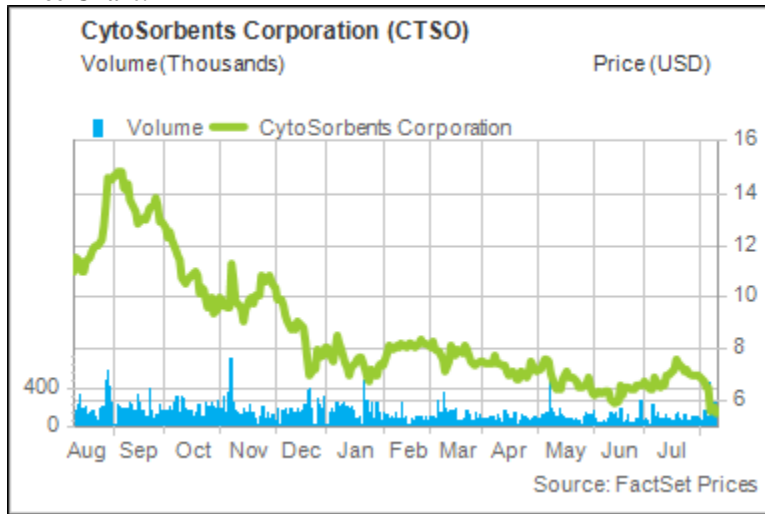
Exhibit 9. Income Statement

CTS0: Income Statement (\$000)																					
..YE December 31	2018A	1Q19A	2Q19A	3Q19E	4Q19E	2019E	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenue:																					
CytoSorb Direct Sales (Germany, Austria, Switzerland)	20,143	4,576	5,850	6,000	6,200	22,148	6,081	6,345	6,874	7,138	26,439	40,239	54,439	69,046	84,070	99,520	115,405	131,735	148,520	150,699	150,699
CytoSorb Distributor (Rest of EU)			-				3,032	3,164	3,428	3,559	13,183	13,336	21,587	27,297	41,422	55,871	70,651	85,766	86,763	87,771	87,771
CytoSorb (Cardiac surgery EU)							1,045	1,091	1,182	1,227	4,545	6,866	9,218	11,604	14,022	16,474	16,589	16,705	16,822	16,940	16,940
CytoSorb (Cardiac surgery US)							-	-	-	-	-	5,345	10,776	16,294	21,899	27,593	66,755	67,290	67,829	68,373	68,373
CytoSorb (sepsis US)												8,773	17,846	45,376	92,302	187,755	200,508	223,353	246,919	271,225	271,225
VetResQ						300	81	84	91	95	350	368	386	405	425	447					
Other Sales	109																				
Total Product Sales	20,252	4,576	5,850	6,000	6,200	22,626	10,239	10,684	11,574	12,020	44,517	74,927	114,251	170,022	254,140	387,660	469,908	524,849	566,853	595,008	595,008
Royalty (HemoDefend US)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grant revenue	2,252	615	382			997															
Other revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	22,504	5,191	6,232	6,000	6,200	23,623	10,239	10,684	11,574	12,020	44,517	74,927	114,251	170,022	254,140	387,660	469,908	524,849	566,853	595,008	595,008
Expenses:																					
Costs of Goods Sold	7,489	1,738	1,834	1,500	1,550	6,622	2,048	2,137	2,315	2,404	8,903	14,985	22,850	34,004	50,828	77,532	93,982	104,970	113,371	119,002	119,002
%COGS	37%	38%	29%	25%	25%	25%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Research and Development	7,723	2,418	2,930	2,733	2,839	10,513	2,660	2,775	3,007	3,122	11,564	12,721	13,993	15,392	16,931	18,624	20,487	22,536	24,789	27,268	29,995
%R&D	38%	53%	50%	46%	46%	46%	26%	26%	26%	26%	26%	17%	12%	9%	7%	5%	4%	4%	4%	5%	5%
Selling, General and Administrative	20,874	4,758	4,506	5,970	6,200	21,434	5,669	5,916	6,409	6,655	24,649	28,346	31,180	31,804	32,440	33,089	33,751	34,426	35,114	35,817	36,533
%SG&A	103%	104%	77%	99%	100%	95%	55%	55%	55%	55%	55%	38%	27%	19%	13%	9%	7%	7%	6%	6%	6%
Legal, financial and other counseling	2,002	561	592	521	541	2,214	509	531	576	598	2,214	2,214	2,214	2,214	2,214	2,214	2,214	2,214	2,214	2,214	2,214
Total Expenses	38,088	9,475	9,862	10,724	11,129	40,783	10,886	11,359	12,306	12,779	47,330	58,266	70,238	83,415	102,413	131,459	150,433	164,145	175,488	184,300	187,743
Operating Income (Loss)	(15,584)	(4,284)	(3,630)	(4,724)	(4,929)	(17,160)	(647)	(675)	(731)	(760)	(2,813)	16,661	44,014	86,607	151,727	256,200	319,474	360,704	391,365	410,708	407,264
Interest income (expense), net	(1,461)	(205)	(214)																		
Gain (loss) on foreign currency transactions	(785)	(393)	297																		
Change in warrant liability																					
Other income (expense), net																					
Total Other Income	(2,246)	(598)	83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pretax Income	(17,830)	(4,882)	(3,547)	(4,724)	(4,929)	(17,160)	(647)	(675)	(731)	(760)	(2,813)	16,661	44,014	86,607	151,727	256,200	319,474	360,704	391,365	410,708	407,264
Income Tax Benefit (Provision)	-	-		(236)	(246)	(858)	(52)	(54)	(59)	(61)	(225)	1,666	5,282	12,991	27,311	53,802	76,674	100,997	129,150	135,534	134,397
Tax Rate	0%	0%	5%	5%	5%	5%	8%	8%	8%	8%	8%	10%	12%	15%	18%	21%	24%	28%	33%	33%	33%
GAAP Net Income (Loss)	(17,830)	(4,882)	(3,547)	(4,488)	(4,682)	(16,302)	(595)	(621)	(673)	(699)	(2,588)	14,995	38,732	73,616	124,416	202,398	242,801	259,707	262,215	275,174	272,867
GAAP-EPS	(0.58)	(0.15)	(0.11)	(0.14)	(0.14)	(0.51)	(0.02)	(0.02)	(0.02)	(0.02)	(0.08)	0.46	1.19	2.24	3.78	6.12	7.31	7.79	7.84	8.19	8.09
GAAP-EPS (Dil)	(0.58)	(0.15)	(0.11)	(0.14)	(0.14)	(0.51)	(0.02)	(0.02)	(0.02)	(0.02)	(0.08)	0.46	1.19	2.24	3.78	6.12	7.31	7.79	7.84	8.19	8.09
Wgtd Avg Shrs (Bas) - '000s	30,719	31,931	32,267	32,299	32,331	32,207	32,364	32,396	32,429	32,461	32,412	32,542	32,673	32,803	32,935	33,067	33,199	33,332	33,466	33,600	33,734
Wgtd Avg Shrs (Dil) - '000s	30,719	31,931	32,267	32,299	32,331	32,207	32,364	32,396	32,429	32,461	32,412	32,542	32,673	32,803	32,935	33,067	33,199	33,332	33,466	33,600	33,734

Source: Dawson James estimates

Important Disclosures:

Price Chart:



Price target and rating changes over the past three years:

Initiated – Buy – July 11, 2019 – Price Target \$15.00
 Update – Buy – August 12, 2019 – Price Target \$15.00

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- 1) **Buy:** The analyst believes the price of the stock will appreciate and produce a total return of at least 20% over the next 12-18 months;
- 2) **Neutral:** The analyst believes the price of the stock is fairly valued for the next 12-18 months;
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Ratings Distribution	Company Coverage		Investment Banking	
	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	43	86%	13	30%
Market Perform (Neutral)	7	14%	0	0%
Market Underperform (Sell)	0	0%	0	0%
Total	50	100%	13	26%

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