Zentek’s ZenGUARD(TM)-Enhanced Filters Demonstrate Robust Return on Investment in ParticleOne Study

written by Raj Shah | September 11, 2023

September 11, 2023 (Source) – **Zentek Ltd.** (“**Zentek**” or the “**Company**“) (Nasdaq:ZTEK)(TSX-V:ZEN), an intellectual property technology development and commercialization company is pleased to announce the successful results of a recent study conducted by ParticleOne, an RWDI Ventures company (“**RWDI**“).

The study evaluated the performance of Zentek’s ZenGUARD™-enhanced filter technology in comparison to a standard Minimum Efficiency Reporting Value (“**MERV**“) 9 filter. The study was conducted to assess the effectiveness of filters in removing infectious particles from the air and to determine the potential return on investment (“**ROI**“) of enhanced viral filtration from using ZenGUARD™ technology.

Key Findings:

- The ParticleOne model ROI analysis indicated that opting for the ZenGUARD™-enhanced MERV 9 filter for enhanced viral filtration resulted in a substantial reduction in annual absenteeism costs ($15,016.95) compared to a regular MERV 9 filter in an office space of 10,000 square feet with 75 occupants.

“Upon reviewing ZenGUARD™ HVAC filter performance, it is clear that the technology does not focus purely on physical removal of

harmful pathogens but also on deactivating pathogens, thus preventing the particles from infecting occupants within the space," commented Justin Downey, RWDI Strategic Director and Principal. "Consequences of infectious disease will always exist and be significant, but with an enhanced understanding of risk mitigation tools like ZenGUARD™ HVAC filters and proactive planning, the expectation is that our future vulnerability to seasonal illness, surges in new variants of SARS-CoV-2, or even the spread of novel respiratory pathogens, can be lessened."

"Poor indoor air quality remains a significant challenge for employee health, wellness, and productivity. With this third-party assessment by ParticleOne, we have been able to help quantify the value proposition of ZenGUARD™ HVAC filters in helping address this problem," commented Greg Fenton, CEO of Zentek. "Importantly, ZenGUARD™ technology focuses on increasing viral filtration efficiency without additional equipment or an increase in energy consumption. We believe this combination is unique in the industry and incredibly important as we all look to improve people's health indoors while also reducing our carbon footprint."

ParticleOne Study Background:

- The study was performed using ParticleOne's multi-pathogen predictive risk assessment software that assesses a space's risk of airborne transmission of SARS-CoV-2, Influenza A/B, Rhinovirus, and RSV, the most prominent respiratory agents that disrupt the workforce and cause absenteeism
- The model is a combination of Wells-Riley Transmission methods adapted to calculate infectious disease probabilities under dynamic, ventilated conditions and a network of well-mixed ventilated zones, using a continuously stirred tank model adjusted to allow flow

between breathing and overhead zones and associated air change and dilution effects

- The software utilizes a filter's estimated efficiency of physical removal or filtration of the most penetrating particle size falling within the American Society of Heating, Refrigerating and Air-Conditioning Engineers ("**ASHRAE**"), 52.2 Standard's E1 range (0.1 -1.0µm)
- The model uses inputs fundamental to measuring virus resiliency, including:
    - Building Performance – characteristics of size and volume of air in the space, ventilation and filtration
    - Occupant Dynamics – number of people, activity levels, duration of occupancy, masking and distancing
    - Case Count Settings – applied epidemiological factors including, transmissibility of each pathogen, typical infectious disease prevalence (i.e., Background Infection Rate), and vaccination

- The space prototype used for the study was a typical open office layout based on ParticleOne and RWDI benchmarks:
    - Office space of 10,000 square feet; 10-foot ceiling height
    - 75 occupants
    - 3 air changes per hour
    - Outdoor air percentage of 33%

- ParticleOne results then outline transmission risk probabilities by applying a Risk Index. This directly correlates to probabilities and frequency of infection in each specific space and to reducing yearly absenteeism rates

- The study leveraged testing results from LMS Technologies and the National Research Council of Canada ("**NRC**")
- ParticleOne determined the ZenGUARD™-enhanced viral filtration efficiency to be equivalent to the physical filtration efficiency as used within the software to represent the "removal" of harmful pathogenic particles.
- Absenteeism costs included in the model were based on the following ParticleOne and RWDI benchmarks:
    - Of the projected days absent due to respiratory illness, only 65% of workers stay home to rest
    - The residual 35% of ill workers remain in office, where they are 70% as productive as they would be when healthy
    - Average annual employer cost of $99,750 per employee ($75,000 employee salary + 30% estimate for other employee benefits and costs)

Canadian Federal Government Opportunity

As previously disclosed, Zentek was awarded a Government of Canada testing contract and has successfully completed a nearly two-year testing program through Canada's Innovative Solutions Canada Testing Stream. Testing was in partnership with the NRC's Aerospace Research Centre, Construction Research Centre and Real Property Planning Management Groups. Part of the Innovative Solutions Canada Testing Stream is a Pathway to Commercialization program, which gives successful Canadian small and medium-sized enterprises the exclusive opportunity to sell their innovation directly to the Government of Canada through Public Services Procurement Canada.

Using a similar approach to the ParticleOne methodology above, the Company estimates that absenteeism costs across the entire

Federal Public Service could be reduced by approximately $112.5 million. The key assumptions underlying the Company's analysis are as follows:

- 413,334 full-time equivalent employees across the Federal Public Service in Canada[1]
- All federal government buildings where these employees work use MERV 9 filters currently and convert to ZenGUARD™-enhanced MERV 9 filters
- Space prototype assumptions consistent with those used by ParticleOne as outlined above
- Absenteeism cost assumptions consistent with those used by ParticleOne, except for the total average annual employee compensation of $125,300[1]

The above analysis is disclosed for illustrative purposes only, and there can be no assurance that (i) the assumptions used by the Company in conducting its analysis are accurate and correct, (ii) the above analysis is or will be accurate or consistent with any third-party analysis, (iii) any third-party, including but not limited to, and governmental branch or office, awards or offers any contract to the Company, or (iv) the Pathway to Commercialization program will result in any future sales or revenue for the Company, and readers should not place undue reliance on such analysis.

National Air Filtration Association (NAFA) Conference

Zentek will be participating in the 2023 NAFA Annual Convention from September 13-15 in Nashville, TN. This event brings hundreds of professionals from numerous companies in the air filtration industry under one roof. It's an important annual event for networking and for gaining insights into best practices and new technologies in the air filtration industry.

The Company looks forward to discussing the results of its ZenGUARD™ ROI study and its recently disclosed viral filtration efficiency results with dust loading with NAFA attendees.

About ParticleOne

ParticleOne is virus-resiliency software for buildings, developed and used by the world-renowned environmental and building-performance engineers at RWDI.

Recognizing that healthy indoor air must include infectious disease controls, RWDI developed ParticleOne to evaluate the specific airborne viral risks in buildings and shared spaces. The software determines appropriate risk mitigation measures to better protect people and business operations.

About Zentek Ltd.

Zentek is an ISO 13485:2016 certified graphene technology company focused on the research, development and commercialization of graphene-based novel products seeking to give the Company's commercial partners a competitive advantage by making their products better, safer, and greener.

Zentek's patented technology platform ZenGUARD™, is shown to have 99-per-cent antimicrobial activity and to significantly increase the bacterial and viral filtration efficiency of both surgical masks and HVAC systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario.

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To find out more about Zentek, please visit our website at www.Zentek.com. A copy of this news release and all material documents in respect of the Company may be obtained on Zentek's SEDAR profile at http://www.sedar.com/.

Forward-Looking Statements

This news release contains forward-looking statements. Since forward-looking statements address future events and conditions, by their very nature they involve inherent risks and uncertainties. Although Zentek believes that the assumptions and factors used in preparing the forward-looking information in this news release are reasonable, undue reliance should not be placed on such information, which only applies as of the date of this news release, and no assurance can be given that such events will occur in the disclosed time frames or at all. Zentek disclaims any intention or obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, other than as required by law.

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1. Office of the parliamentary budget officer. (2023, April 5). *Personnel Expenditure Analysis*. Retrieved September 6, 2023, from https://distribution-a617274656661637473.pbo-dpb.ca/b6aaf0274b613d1d86debb6e038f8794194733225f5dc2b4bc99f712c6c6f343

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