Zentek Completes Study Quantifying Energy and Emission Savings of ZenGUARD(TM)-Enhanced HVAC Filters

written by Raj Shah | January 22, 2024

January 22, 2024 (Source) – **Zentek Ltd.** ("**Zentek**" or the "**Company**") (Nasdaq:ZTEK)(TSX-V:ZEN), an intellectual property development and commercialization company, is pleased to announce the completion of a new study highlighting the potential significant energy, emission and cost savings for commercial buildings adopting ZenGUARD™ Enhanced Air Filters.

As previously announced on February 6, 2023, and September 6, 2023, independent testing by the National Research Council of Canada ("NRC") and LMS Technologies Inc. ("LMS") demonstrated that ZenGUARD™ Enhanced Air Filters can significantly reduce the concentration of infectious aerosols indoors without adversely affecting airflow and energy consumption compared to using equivalent non-coated, MERV-rated HVAC filters.

Using the test results from the NRC and LMS, the study determined the amount of outside air required to be brought into a typical office space to achieve an equivalent risk reduction as using a ZenGUARD™ Enhanced Air Filter instead of a regular MERV 9 filter.

Key Findings

- For a regular MERV 9 filter to achieve a reduction in infection risk consistent with a ZenGUARD™ Enhanced Air Filter, the percentage of outside air would need to be increased from 20% to 53%
- By using a ZenGUARD™ Enhanced Air Filter to control infectious aerosols instead of increasing the percentage of outside air to achieve a similar risk reduction, the Company estimates that a typical office space of 10,000 square feet with 75 occupants can reduce HVAC energy consumption by approximately 62%
- This reduction in energy consumption equates to monetary savings of approximately $12,400 per year and avoidance of 32 tonnes of CO_2 emissions per year for each office space[1] (the CO_2 emissions equivalent of driving an internal combustion engine car approximately 188,000 kilometres [2, 3])

“We have learned through the pandemic that viruses spread almost exclusively when people are indoors, and one of the most common recommendations from governments and industry associations to help reduce this risk is to maximize the amount of outside air being brought into buildings. One of the drawbacks of increasing the percentage of outside air into buildings – especially in very hot or cold climates – is the energy and emissions required to condition the air to room temperature,” commented Greg Fenton, CEO of Zentek.

“With climate change and decarbonization being one of the biggest challenges facing society – and buildings contributing nearly 40% of global energy-related CO_2 emissions – we need simple, scalable, carbon-conscious solutions that can control infectious aerosols and keep people safe. Whether it’s higher rated MERV filters that require more fan power and energy, air purifiers that have a meaningful manufacturing footprint and

need a power source – or increasing the percentage of outside air – typically all other methods of controlling infectious aerosols require additional energy and create emissions in some way. Based on this study and our team's research, we believe ZenGUARD™ Enhanced Air Filters are one of the only tools in the toolbox to help control infectious aerosols without significantly increasing energy consumption and emissions. And the ability for our product to accomplish this within existing HVAC systems that are already in most buildings means we can begin making a positive impact as soon as filters are replaced with the potential to quickly scale to many other buildings globally."

Study Background

In addition to the assumptions disclosed in its September 11, 2023, press release, the Company used government and third-party energy consultant statistics to estimate the energy savings of using a ZenGUARD™ Enhanced Air Filter instead of a regular MERV 9 filter to control infectious aerosols indoors as opposed to relying on an increased percentage of outside air. The assumptions underlying the Company's analysis are as follows:

- Office space of 10,000 square feet with an occupancy of 75 people (or 133.33 square feet per person), one infector for every 10 people, 10-foot ceiling height, and air flow rate of 5,000 cubic feet per minute
- 10°C temperature gradient to condition air throughout the year
- Average energy price of $0.15 per kWh
- Minimum outside air percentage based on guidance from ASHRAE 62.1
- Monetary savings expressed in Canadian dollars
- Other potential considerations related to buildings and

air handling unit operation have not been included in order to isolate and quantify the energy and CO_2 impact of outside air temperature adjustment

Canadian Federal Government Energy Savings Opportunity

Extrapolating these results to all buildings within the Canadian Federal Public Service, the Company estimates that energy consumption could be reduced by 455.7 million kWh, which translates to monetary savings of $68.4 million per year. From a carbon emissions perspective, this is equivalent to approximately 58,200 tonnes of CO_2 per year[4] – an amount that would require nearly 960,000 tree seedlings growing for 10 years to absorb.[5]

The key assumptions underlying the Company's analysis for the Federal Government are as follows:

- 5,511 Federal government office buildings (calculated using 413,334 employees, 75 people per office and 10,000 square feet per office)
- 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 outlined in Study Background section above

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, any governmental branch or office, awards or

offers any contract.

About Zentek Ltd.

Zentek is an ISO 13485:2016 certified intellectual property technology company focused on the research, development and commercialization of 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 anti-microbial activity and to significantly increase the bacterial and viral filtration efficiency of both surgical masks and HVAC (heating, ventilation, and air conditioning) systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario.

Zentek has a global exclusive license to the Aptamer-based platform technology developed by McMaster University which is being jointly developed Zentek and McMaster for both the diagnostic and therapeutic markets.

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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.ca/.

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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SOURCE: Zentek Ltd.