

## Understanding employee mask discomfort is key to safety and all-day mask protection.

*If we want our employees to wear masks, we must first understand why they do not want to wear them. Short-term discomfort, performance degradation, and skin reactions following the use of N95 respirators and medical masks are some of the main pain points.*

*It is well known that wearing a respirator (commonly known by their “N” number, N95, etc.) can cause a variety of side effects that negatively affect the performance of an individual. In the paper/study listed below, in April 2020, multiple people wore N95 and surgical masks for up to four (4) hours to see what effect the wearing of masks had on their skin.*

*As any teenager will tell you, masks cause acne. They call this skin problem MACNE! This report showed that more serious skin and health problems can arise from wearing both N95 respirators and surgical masks for a typical shift of work.*

*“Skin symptoms to RPE wearing (in this case an N95 respirator 1860 from 3M Corporation, St Paul, Minnesota), including redness or erythema, facial indentation, itch, pain or prickling, burning, were recorded. Furthermore, reactions of respiratory tract and eyes, like an itchy nose, sneezing, running nose, stuffy nose, itchy throat, cough, chest tightness and shortness of breath, itchy eyes and watering eyes were also recorded.”*

*The conclusion of the study was:*

*“This study demonstrates that skin hydration, TEWL, erythema, pH and sebum secretion increased after donning masks and respirators. There was no significant difference between the physiological values on the N95-covered and medical mask-covered areas at any time point. However, N95 masks were associated with more skin reactions than medical masks and with higher discomfort and incompliance scores.”*

*Air Cycle Systems™ (ACS™) is working on solutions to the problems that people experience with masks. ACS is engineering a comfortable and safe light-industrial employee mask system so that your business can remain open all day. A future ACS COVID-19 BUSINESS BRIEF™ will evaluate further health problems for masks that limit your ability to ask employees to safely work for full shifts.*

### NOTES:

- 1. RPE - Respiratory Protective Equipment (RPE) is a particular type of Personal Protective Equipment (PPE), used to protect the individual wearer against the inhalation of hazardous substances in the workplace air.*
- 2. TEWL - Transepidermal Water Loss - Is the loss of water that passes from inside a body (animal or plant) through the epidermis*
- 3. ERYTHEMA - Superficial reddening of the skin, usually in patches, as a result of injury or irritation causing dilatation of the blood capillaries.*

4. *The study quoted above was authored by WEI HUA Et al. : Short-term Skin Reactions Following Use of N95 Respirators and Medical Masks.*  
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7272965/pdf/COD-9999-na.pdf>.)

**We need a better way to protect anyone who needs to wear an N95 level mask for any significant time.**

**Contact us at: [ACS.COVID.BB@aircyclesystems.com](mailto:ACS.COVID.BB@aircyclesystems.com) to learn more.**

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