Multimedia Appendix 3. Significant associations between workplace exposures and immune-mediated diseases, identified as part of the Environmental Polymorphisms Registry.

| Exposure Class and Chemical† | IMD Condition | N‡ | P value* | Odds Ratio (Lower Bound, Upper Bound) |
|-----------------------------|---------------|----|----------|--------------------------------------|
|                             |               |    |          |                                      |
| **Alcohols**                |               |    |          |                                      |
| Isopropanol                 | Allergic rhinitis, hay fever or seasonal allergies | 3049 | **0.022** | 1.3990 (1.1415, 1.7155) |
| **Carcinogens**             |               |    |          |                                      |
| X-rays                      | Allergic rhinitis, hay fever or seasonal allergies | 3049 | **0.005** | 1.6814 (1.2742, 2.2254) |
| Radiation                   | Allergies or allergic reactions (other than seasonal allergies) | 3018 | **0.034** | 1.6225 (1.1885, 2.2092) |
| **Cleaning Liquids**        |               |    |          |                                      |
| Ammonia                     | Allergic rhinitis, hay fever or seasonal allergies | 3049 | **0.003** | 1.6885 (1.2910, 2.2143) |
| Chlorine bleach             | Allergies or allergic reactions (other than seasonal allergies) | 3018 | **0.005** | 1.3942 (1.1682, 1.6625) |
| Ammonia                     | Asthma        | 3033 | <**0.001** | 2.04215 (1.4426, 2.8524) |
| Chlorine bleach             | Asthma        | 3033 | **0.016** | 1.5188 (1.1855, 1.9378) |
| **Dust**                    |               |    |          |                                      |
| Fiberglass dust             | Rheumatoid arthritis | 2622 | **0.038** | 3.7955 (1.4119, 8.7321) |
| Substance         | Condition                                      | Value | p-value | OR (95% CI)     |
|-------------------|------------------------------------------------|-------|---------|-----------------|
| Talc              | Rheumatoid arthritis                           | 2622  | 0.089   | 3.3119 (1.2395, 7.5553) |
| Talc              | Myositis                                       | 3031  | 0.048   | 13.5993 (2.3206, 55.9864) |
| Talc              | Allergic rhinitis, hay fever or seasonal allergies | 3049  | 0.057   | 2.0431 (1.2511, 3.3959) |
| Talc              | Allergies or allergic reaction (other than seasonal allergies) | 3018  | 0.0996  | 1.9158 (1.1719, 3.1265) |

**Dyes**

| Substance         | Condition                                      | Value | p-value | OR (95% CI)     |
|-------------------|------------------------------------------------|-------|---------|-----------------|
| Toner             | Allergies or allergic reactions (other than seasonal allergies) | 3018  | 0.018   | 1.4131 (1.1491, 1.7354) |
| Inkjet printer    | Allergies or allergic reactions (other than seasonal allergies) | 3018  | 0.022   | 1.3712 (1.1326, 1.6582) |
| Fountain pen ink  | Allergies or allergic reactions (other than seasonal allergies) | 3018  | 0.097   | 1.3835 (1.0885, 1.7545) |
| India ink         | Allergies or allergic reactions (other than seasonal allergies) | 3018  | 0.068   | 2.6427 (1.3074, 5.4424) |
| Toner             | Allergic rhinitis, hay fever or seasonal allergies | 3049  | <0.001  | 1.5776 (1.2908, 1.9300) |
| Product Type          | Condition                                | n    | p-value | OR         | 95% CI                                |
|----------------------|------------------------------------------|------|---------|------------|--------------------------------------|
| Inkjet printer       | Allergic rhinitis, hay fever or seasonal allergies | 3049 | <0.001  | 1.4752     | (1.2274, 1.7740)                     |
| Fountain pen ink     | Allergic rhinitis, hay fever or seasonal allergies | 3049 | 0.017   | 1.4793     | (1.1735, 1.8671)                     |
| Gel ink              | Allergic rhinitis, hay fever or seasonal allergies | 3049 | <0.001  | 2.0529     | (1.4810, 2.8650)                     |
| Toner                | Psoriasis                                | 3019 | 0.059   | 1.8242     | (1.1914, 2.7368)                     |
| Toner                | Asthma                                   | 3033 | 0.013   | 1.6152     | (1.2183, 2.1249)                     |
| Inkjet printer       | Asthma                                   | 3033 | 0.099   | 1.4305     | (1.0942, 1.8579)                     |

**Emissions**

| Emission             | Condition                                | n    | p-value | OR         | 95% CI                                |
|----------------------|------------------------------------------|------|---------|------------|--------------------------------------|
| Carbon monoxide      | Multiple sclerosis or MS                  | 3042 | 0.006   | 6.4583     | (1.8525, 18.2844)                    |
| Carbon monoxide      | Allergies or allergic reaction (other than seasonal) | 3018 | 0.085   | 1.6943     | (1.1524, 2.4828)                     |
| Carbon dioxide       | Allergies or allergic reaction (other than seasonal) | 3018 | 0.035   | 1.8336     | (1.2348, 2.7170)                     |
| Carbon monoxide      | Allergic rhinitis, hay fever or seasonal allergies | 3049 | 0.048   | 1.7724     | (1.2093, 2.6174)                     |

**Heavy Metals**

| Metal                | Condition       | n    | p-value | OR         | 95% CI                                |
|----------------------|-----------------|------|---------|------------|--------------------------------------|
| Mercury              | Celiac disease  | 3041 | 0.097   | 9.1864     | (1.6322, 34.9272)                    |
| Substance                         | Condition(s)                                | Study Code | P-value | Odds Ratio   | 95% CI          |
|----------------------------------|---------------------------------------------|------------|---------|--------------|-----------------|
| Mercury                          | Allergies or allergic reaction (other than seasonal allergies) | 3018       | 0.051   | 1.9780       | (1.2379, 3.1579) |
| **Lubricants**                   |                                             |            |         |              |                 |
| Brake fluid                      | Psoriasis                                  | 3019       | **0.050** | 2.4891       | (1.2849, 4.4948) |
| Motor oil                        | Psoriasis                                  | 3019       | **0.028** | 2.2455       | (1.3127, 3.6819) |
| Transmission fluid               | Psoriasis                                  | 3019       | 0.057   | 2.5306       | (1.2716, 4.6641) |
| Motor oil                        | Hypothyroidism (e.g., Hashimoto's thyroiditis) | 3026       | 0.072   | 0.3927       | (0.1836, 0.7476) |
| **Paints and Paint Thinners**    |                                             |            |         |              |                 |
| Luminescent paint and paint thinner | Allergic rhinitis, hay fever or seasonal allergies | 3049       | 0.051   | 5.3938       | (1.5012, 29.3520) |
| Naphtha                          | Myositis                                   | 3031       | 0.093   | 19.8294      | (2.0291, 99.0861) |
| Oil-based paint and paint thinner | Rheumatoid arthritis                       | 2622       | 0.066   | 2.8368       | (1.2746, 5.6916) |
| **Pesticides and Fumigants**     |                                             |            |         |              |                 |
| Other pesticide or fumigant      | Celiac disease                             | 3041       | 0.059   | 27.0539      | (2.7595, 134.6697) |
| **Plastic Production Chemicals** |                                             |            |         |              |                 |
| Bisphenol A (BPA)                | Allergic rhinitis, hay fever or seasonal allergies | 3049       | 0.057   | 3.3348       | (1.4344, 8.6514 ) |
| Other compound used in plastic production | Allergies or allergic reactions (other than seasonal allergies) | 3018       | 0.088   | 4.4087       | (1.4075, 16.2313) |
| Other compound used in plastic production | Asthma | 3033 | 0.086 | 4.42509 (1.3135, 13.5335) |
|-------------------------------------------|--------|------|--------|--------------------------|

**Soldering Materials**

| Tin-zinc alloy | Psoriasis | 3019 | 0.097 | 4.1918 (1.2341, 11.3825) |
|----------------|------------|------|--------|--------------------------|

**Solvents and Degreasers**

| Other solvents and degreasers | Allergies or allergic reactions (other than seasonal allergies) | 3018 | 0.058 | 1.6096 (1.1584, 2.2298) |
|-------------------------------|---------------------------------------------------------------|------|--------|--------------------------|
| Dichlorobenzene               | Ulcerative colitis                                            | 3023 | 0.072 | 6.6442 (1.6562, 19.5769) |
| Ethyl benzene                 | Rheumatoid arthritis                                          | 2622 | 0.057 | 3.5720 (1.3326, 8.1852) |
| Ethyl dichloride              | Psoriasis                                                     | 3019 | **0.018** | 4.2395 (1.5600, 9.9241) |

Abbreviations: IMD = immune-mediated disease; OR = odds ratio

†Total N = 4574; Sample sizes for individual associations reflect adjustments for missing data (i.e., no response to survey questions)

‡No significant associations were identified for acids or glues/adhesives

*P values < 0.05 with a false discovery rate correction are in bold font