

CANADA

(Class Action)
SUPERIOR COURT

PROVINCE OF QUEBEC
DISTRICT OF MONTREAL

NO: 500-06-001141-213

J.N. POIRIER, *ès qualité* on behalf of his
minor child, A.P.

Plaintiff

-vs.-

MÉTALLIFER ALUMINUM INC., legal person
duly constituted, having its head office at 2190
3rd Street, City of Lévis, Province of Quebec,
G6W 6V4

and

MÉTALLIFER (2009) LTÉE, legal person duly
constituted, having its head office at 2190 3rd
Street, City of Lévis, Province of Quebec,
G6W 6V4

Defendants

**APPLICATION TO AUTHORIZE THE BRINGING OF A CLASS ACTION & TO
APPOINT THE PLAINTIFF AS REPRESENTATIVE PLAINTIFF**
(Art. 574 C.C.P and following)

TO ONE OF THE HONOURABLE JUSTICES OF THE SUPERIOR COURT, SITTING
IN AND FOR THE DISTRICT OF MONTREAL, YOUR PLAINTIFF STATES AS
FOLLOWS:

I. GENERAL PRESENTATION

A) The Action

1. The Plaintiff wishes to institute a class action on behalf of the following class, of which he is a member, namely:
 - All persons residing in Quebec who wore a face mask coated with nanoform graphene materials (the “Graphene Masks”) or any other group to be determined by the Court;



2. On July 13, 2020, the wearing of masks on public transit was made mandatory for persons aged 12 and up across the province of Quebec (exempting persons with a medical condition). On July 18, 2020, the wearing of masks in indoor public spaces followed suit, the whole as appears more fully from a copy of the CBC News article entitled “Quebec to make masks mandatory on public transit across province” dated June 29, 2020 and from a copy of the CBC News article entitled “Quebec makes masks mandatory in indoor public spaces” dated July 13, 2020, produced herein *en liasse* as **Exhibit R-1**;
3. On October 8, 2020, all secondary school students and staff were required to wear masks at all times on school grounds in Quebec’s “red zones”, the whole as appears more fully from a copy of the CBC News article entitled “Mandatory masks add to challenging year for Quebec high school students” dated October 7, 2020, produced herein as **Exhibit R-2**;
4. On January 18, 2021, all secondary school students were required to wear “procedural masks” and each student was supplied with two of such masks for this purpose by the Quebec government, the whole as appears more fully from a copy of the Global News article entitled “Coronavirus: Quebec to cover cost of recovering and recycling disposable masks from high schools” dated January 20, 2021 and from a copy of the CityNews article entitled “COVID-19: Quebec high school students back in classroom after month long layoff” dated January 18, 2021, produced herein *en liasse* as **Exhibit R-3**;
5. On March 8, 2021, students in grades 1 through 6 were required to wear what was called “pediatric masks”, “procedural masks”, and “pediatric procedural masks” at all times inside classrooms and on school transport in “red zones” with this only being required for students in grades 5 through 6 in so-called “orange zones”, the whole as appears more fully from a copy of the CBC News article entitled “Quebec primary students will be required to wear masks after March break” dated February 24, 2021, from a copy of the Global News article entitled “Mandatory masks for elementary students in Quebec red zones will ‘lower risk’ of COVID-19 outbreaks” dated February 25, 2021, and from copies of extracts from the Quebec government website at www.quebec.ca, and from a copy of the Quebec Government entitled « *COVID 19 : Foire aux Questions – Plan de la Rentrée Scolaire Hiver 2021* » dated January 29, 2021, produced herein *en liasse* as **Exhibit R-4**;
6. On March 25, 2021, Health Canada sent a memo to Canadian Provincial and Territorial Ministries of Health warning that a “preliminary risk assessment” had been conducted on the use of Graphene Masks, which had revealed a potential for “early pulmonary toxicity” (early lung damage) associated with inhalation of microscopic graphene particles¹. Health Canada warned that it had not received data to support the safety and efficacy of the Graphene Masks and that consequently, it considered them to be a health risk, the whole as appears more

¹ Graphene is a strong, very thin material that is used in fabrication, but it can be harmful to lungs when inhaled and can cause long-term health problems.



fully from a copy of the Health Canada document with the subject “*Achat et utilisation de masques faciaux contenant du graphène nanoformé*” dated March 25, 2021, produced herein as **Exhibit R-5**;

7. In order to mitigate the health risks associated with the Graphene Masks, Health Canada (Exhibit R-5):
 - i) Contacted known distributors, importers and manufacturers to inform them that these devices are in violation of the law;
 - ii) Requested that companies who sold these devices immediately stop selling them and issue a recall requesting that the affected devices be returned;
 - iii) Prepared a warning to inform the Canadian public of the potential risks associated with the use of face masks containing nanoform graphene materials;
 - iv) Initiated a safety review of the use of nanoform graphene materials in face masks and requested that manufacturers provide additional information to support this assessment;

8. On March 26, 2021, three ministries of the Quebec government, education, families, and higher education, sent out a directive to school boards, daycares, and health networks that Graphene Masks that had been distributed to them may be dangerous for the lungs as they could contain a potentially toxic material stating:

“If you have this type of mask in stock, we ask that you stop distributing them and keep them in a safe place now,”

The whole as appears more fully from a copy of the CBC News article entitled “Potentially toxic masks distributed in schools and daycares in Quebec” dated March 29, 2021 and from a copy of The Montreal Gazette article entitled “Masks distributed to Quebec schools and daycares might be toxic: report” dated March 26, 2021, produced herein *en liasse* as **Exhibit R-6**;

9. The Graphene Masks known at present include those under code SNN200642 masks, which are made in China and sold and distributed by the Defendant Métallifer – they are recognizable as the grey and blue masks;

10. Quebec had distributed 30.6 million SNN200642 masks to networks under the ministry of family, education and higher education and, since January 2021, the province had distributed 116 million masks to the school network, 4.6 million of which were of the SNN200642 line, the whole as appears more fully from a copy of the CTV News article entitled “‘I just now feel a bit betrayed’: Quebec teachers and parents respond after potentially toxic masks pulled” dated March 26, 2021, produced herein as **Exhibit R-7**;



11. The issues with the Graphene Masks had come to light after a “concerned citizen” had complained of strange symptoms from the Graphene Mask and Health Canada had looked into research on rats and found troubling results, the whole as appears more fully from a copy of the CTV News article entitled “Health Canada says a citizen complaint launched mask recall; other masks under investigation” dated March 30, 2021, produced herein as **Exhibit R-8**;
12. Since banning the Graphene Masks, Quebec has been trying to trace which workers were given them, which so far includes groups of teachers, daycare workers, Montreal transit staff and some healthcare workers (Exhibit R-8), the whole as appears more fully from a copy of the CTV News article entitled “Montreal transit workers the latest to learn they’ve been wearing potentially toxic masks” dated March 29, 2021, produced herein as **Exhibit R-9**;
13. There may be more bad news coming, as well, about a second type of mask; Defendant Métallifer has already stated that it has stopped selling another kind of mask, known by the serial number #SMDP20605 (Exhibit R-8);
14. The Graphene Masks are coated with a layer of graphene, a type of carbon, in its nano form. The tiny particles are so close together that they supposedly cannot let viruses pass through. The problem with the Graphene Masks is the graphene particles themselves, and the risk of breathing them in (Exhibit R-8);
15. The Graphene Masks were falsely represented as safe for humans to wear on their faces, despite a wealth of knowledge to the contrary. Particularly troublesome is that the Graphene Masks were being distributed in schools and healthcare settings where there are more children and elderly, who are more vulnerable to lung injury and need to be especially careful about what they breath in (Exhibit R-8);
16. Contrary to the Defendants’ explicit and implied representations, legitimate science and appropriate testing reveals that the Graphene Masks are indeed dangerous, posing an unreasonable risk to human health and safety;
17. By reason of their actions and omissions, the Defendants caused Class Members to wear the Graphene Masks, thereby causing the Plaintiff and the members of the Class to suffer damages, upon which they are entitled to claim;

B) The Defendants

18. Defendant Métallifer Aluminum Inc. is a Quebec-based corporation with its head office in Lévis, Quebec. It is a distributor of aluminum that has been selling and distributing the Graphene Masks in at least the province of Quebec, the whole as appears more fully from a copy of its entry from the *Registraire des entreprises*, produced herein as **Exhibit R-10**;
19. Defendant Métallifer (2009) Ltée is a Quebec-based corporation with its head office in Lévis, Quebec. It is a distributor of cast metal that has been selling and distributing the Graphene Masks in at least the province of Quebec, the whole as



appears more fully from a copy of its entry from the *Registraire des entreprises*, produced herein as **Exhibit R-11**;

20. Both Métallifer Defendants share the same head office and the same website and will be referred to collectively as herein as Métallifer;
21. Métallifer holds itself out to be « *Votre partenaire industriel entre le Canada et la Chine* » “Your industrial partner between Canada and Chine”, the whole as appears more fully from copies of extracts from Defendant Métallifer’s website at <https://metallifer.com>, produced herein *en liasse* as **Exhibit R-12**;
22. On March 27, 2021, Defendant Métallifer issued a press release indicating that it was stopping the sale and distribution of the Graphene Masks following Health Canada’s notice. In its press release, it maintained that it had leveraged its extensive network of Chinese suppliers to provide customers with quality face masks that meet current standards, but that it was nonetheless stopping the sale and distribution of the face masks under models #SNN200642 and #SMDP20605, the whole as appears more fully from a copy of Defendant Métallifer’s *Communiqué de presse* entitled “*Métallifer met fin à la vente et distribution de certains masques jetables*” dated March 27, 2021, produced herein as **Exhibit R-13**;
23. It appears that the Graphene Masks originate from the Chinese holding company, Jinan Shengquan Group Share Holding Co., Ltd. Within the Shengquan Group, the Shandong Shengquan New Materials Co., Ltd. (“Shandong”) makes a range of face masks and respirators that use graphene and what is referred to as “biomass graphene”. Shandong has a number of U.S. FDA 510(k) premarket notifications², but none of these mention the use of graphene in face masks, the whole as appears more fully from copies of extracts from the Jinan Shengquan Group Share Holding Co., Ltd. website at e.shengquan.com and from copies of extracts from the Shandong Shengquan New Materials Co., Ltd. website at www.sqnewmaterials.com, from a copy of the Chinese patent ZL 2015 1 0819312, and from a copy of an extract from the U.S. FDA website at accessdata.fda.gov, produced herein *en liasse* as **Exhibit R-14**;
24. All Defendants are either directly or indirectly responsible for the distribution and sale of the Graphene Masks within the province of Quebec;

C) The Situation

² A 510(k) is a premarket submission made to U.S. FDA to demonstrate that the device to be marketed is as safe and effective, that is, substantially equivalent, to a legally marketed device (section 513(i)(1)(A) FD&C Act). Submitters must compare their device to one or more similar legally marketed devices and make and support their substantial equivalence claims





I. COVID-19 Face Masks and the Graphene Masks

25. There is a general consensus that COVID-19 viruses are primarily transmitted between people via respiratory droplets generated from an infected person while coughing, sneezing, exhaling or close contact. Hence, the use of masks are part of prevention and control measures to limit the spread of COVID-19, the whole as appears more fully from a copy of the Times of India article entitled “4 types of common mask and if they help protect you from coronavirus” dated April 1, 2020, produced herein as **Exhibit R-15**;
26. Broadly speaking, there are four different types of face masks currently being used during COVID-19: homemade cloth masks, surgical masks, N95 masks, and activated carbon masks, with N95 masks being the most effective, filtering out 95% of particles with a diameter of $0.3\mu\text{m}$. Surgical masks are less effective than N95 and are able to filter 60–80% of smaller particles. Homemade masks with dense materials cause breathing problems and are able to filter only 23 to 33% of $0.3\mu\text{m}$ particles. The activated carbon masks contain an activated carbon filter, which help to collect and filter out the pollutants and germs. The activated carbon masks work well in fighting pollution and tiny particles like bacteria and fungi which spread through the air we breathe in, and thereby, prevent allergies. However, the activated carbon masks do not work exceptionally well in fighting or preventing viruses like COVID-19. They can only trap a minuscule number of viruses (10–20%) (Exhibit R-15);
27. The Graphene Masks consist of a hybrid form of surgical mask such that a layer of nanoform graphene material was added to the mask to produce a cheap alternative to the N95 masks by coating the surgical mask, which a substance to address the looser gaps in the material;



28. According to the *Medical Devices Regulations* (SOR/98-282), enacted under the *Food and Drugs Act* (R.S.C., 1985, c. F-27), a manufacturer is responsible for designing and manufacturing a safe medical device and must take reasonable measures to identify the risks inherent in the device, eliminate risk, and minimize the hazard of failure.³ A medical device cannot adversely affect the health or safety of a user, unless it constitutes an acceptable risk given the benefit and the risk is compatible with a high level of protection of health and safety.⁴ The medical device must be effective for the purpose and use for which it is manufactured, sold, or represented.⁵ During the life of the device, it cannot deteriorate under normal use to such a degree that the health or safety of the user is adversely affected.⁶ The design and manufacturing must minimize any risk to the user from reasonably foreseeable hazards;⁷

II. What is Graphene?

29. Graphene is an engineered nanomaterial, composed of single-carbon atoms forming a sheet of close-packed honeycomb structures. The term “graphene” in industrial and toxicological settings; however, has come to refer to a family of materials, which includes, but is not limited to, single layer graphene, multi-layer and few-layer graphene, graphite nanosheets/graphite nanoplates/graphite nanoflakes (ultrathin or ultrafine graphite), graphene nanosheets, graphene micro sheets, graphene nanoribbons, graphene oxide, graphite oxide, and reduced graphene oxide, the whole as appears more fully from a copy of the Particle and Fibre Toxicology research article entitled “Evaluation of pulmonary and systemic toxicity following lung exposure to graphite nanoplates: a member of the graphene-based nanomaterial family” dated 2016, produced herein as **Exhibit R-16**;

30. Graphene can self-repair holes in its sheets, when exposed to molecules containing carbon, such as hydrocarbons. Bombarded with pure carbon atoms, the atoms perfectly align into hexagons, completely filling the holes, the whole as appears more fully from a copy of the Mesoscale and Nanoscale Physics article entitled “Graphene re-knits its holes” dated 2012, produced herein as **Exhibit R-17**;

³ *Medical Devices Regulations* (SOR/98-282), art. 10.

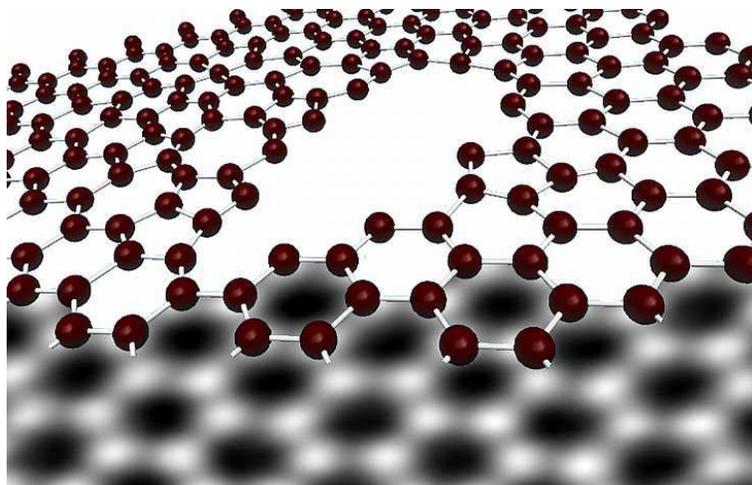
⁴ *Ibid.*, art. 11.

⁵ *Ibid.*, art. 12.

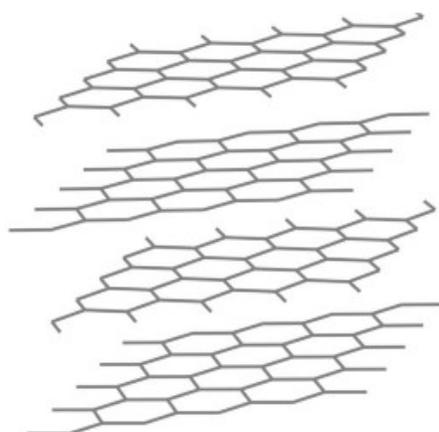
⁶ *Ibid.*, art. 13.

⁷ *Ibid.*, art. 16.

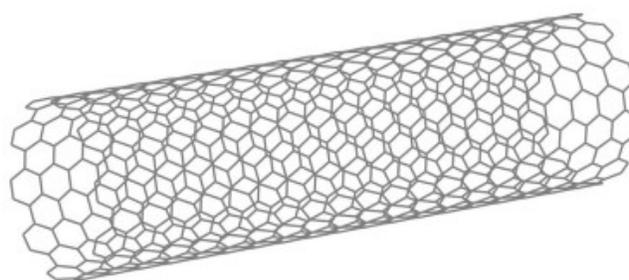




31. More simply, graphene is a material made of carbon atoms that are bonded together in a repeating pattern of hexagons as depicted below;



Graphene



Carbon Nanotube

32. Early concerns around graphene were sparked by previous research on another form of carbon – carbon nanotubes. It turns out that some forms of these fibre-like materials can cause serious harm if inhaled. And following this, a natural next question to ask is whether carbon nanotubes' close cousin, graphene, comes with similar concerns, the whole as appears more fully from a copy of the Medium article entitled “Manufacturers have been using nanotechnology-derived graphene in face masks — now there are safety concerns” dated March 26, 2021, produced herein as **Exhibit R-18**;

33. In 2006, there were warnings regarding emerging concerns that the attributes of nanotechnologies presented a real risk to human health, based on their structure and chemistry. An article published in 2006 stated: “People involved in making and using these materials need to know what the risks are and how to manage them”



and “But where existing knowledge fails, new research is needed to fill the gaps: this must be strategically administered and targeted to addressing specific issues in a timely manner. Failing to take these steps will ultimately lead to people’s health being endangered...”, the whole as appears more fully from a copy of the Annals of Occupational Hygiene article entitled “Nanotechnology: The Next Big Thing, or Much Ado about Nothing?” dated 2006, produced herein as **Exhibit R-19**;

34. When airborne nanoparticles are inhaled and penetrate to the lower regions of the lungs (the alveolar region), they can elicit a response that’s more closely associated with the number or surface area of the particles than their mass. Because of this, very small quantities of material have the potential to cause a lot of harm – much more than you might imagine from the mass of material alone (Exhibit R-19);
35. In 2008, nanotechnology experts were calling for prompt government action to ensure that carbon nanotubes are properly regulated, after researchers discovered that some carbon nanotubes can cause precancerous growths in the same way that asbestos does, the whole as appears more fully from a copy of the Nature article entitled “Carbon nanotubes: the new asbestos?” dated May 20, 2008, produced herein as **Exhibit R-20**;
36. Researchers at the University of Edinburgh’s Centre for Inflammation Research, UK, had found that in mice, long, straight, multi-walled carbon nanotubes can cause the same kind of damage as that inflicted by asbestos fibres when they are injected into the lung’s outer lining, called the mesothelium (Exhibit R-20);
37. The lung clears out foreign bodies by wrapping them up in immune cells, which can then be flushed out of the body. But straight fibres longer than about 20 micrometres cannot be removed in this way because the cells are too small to engulf them. As a result, the cells become inflamed and form unwanted lumps, called granulomas, that can go on to cause mesothelioma, a cancer of the mesothelium. The researchers found that carbon nanotubes of this length led to the formation of granulomas in the mice (Exhibit R-20);
38. Current research indicates that graphene should not be used where it could potentially be inhaled, without a good amount of safety testing beforehand;

III. The Scientific Studies

39. There have been a number of comprehensive reviews on the potential toxicity of graphene;
40. In 2008, a study was published on carbon nanotubes and their relation to mesothelioma, cancer of the lining of the lungs caused by exposure to asbestos. The authors concluded that further research was necessary and great caution should be exercised before introducing such products into the market if long-term harm is to be avoided, the whole as appears more fully from a copy of the Nature Nanotechnology article entitled “Carbon nanotubes introduced into the abdominal



cavity of mice show asbestoslike pathogenicity in a pilot study” dated May 20, 2008, produced herein as **Exhibit R-21**;

41. In 2011, one study urged that the responsible development of nanotechnology will require a coordinated and sustained research effort to understand and manage its risks for human health and the environment. It stated that current nanosafety research is focusing primarily on a small set of materials that are likely to be manufactured at high production volume and may thus be associated with significant human or environmental exposures and that:

There is also emerging literature on potential health risks. Despite the popular image of graphene as a large-area substrate coating, many graphene-family materials are dry powders at some point in their processing and in this form pose the most significant exposure risk through inhalation...

...

In the area of toxicity, there have been a number of studies reported, but the field is too young and the literature too limited to reach conclusions about potential hazards sufficient for risk assessment or regulation.

The whole as appears more fully from a copy of the Chemical Research in Toxicology article entitled “Biological Interactions of Graphene-Family Nanomaterials: An Interdisciplinary Review” dated 2011, produced herein as **Exhibit R-22**;

42. In 2013, a review article was published on whether graphene was safe or toxic. In surveying the studies on in vivo effects of graphene-related materials, it notes that in a study, the intravenous administration of graphene oxide induced extensive pulmonary thromboembolism in mice. It was also shown to cause inflammatory cell infiltration, pulmonary oedema, and the formation of granulomas in mice. It concludes that graphene could become a health hazard, and that future research is necessary to thoroughly explore the safety issues, the whole as appears more fully from a copy of Angewandte Minireviews’ “Graphene: Safe or Toxic? The Two Faces of the Medal” dated 2013, and produced herein as **Exhibit R-23**;

43. Also in 2013, a study compared the inhalation toxicity of different carbon nanoparticles. The results showed that the short-term inhalation of graphene by mice caused toxicity, accumulation of particles in the lungs, and the presence of microgranulomas. Particles of graphene and inflammation were also found in the mediastinal lymph nodes (between the lungs) of some of the mice. The study explains that the inhalation toxicity of carbon-based materials is a complex interaction of several parameters, the whole as appears more fully from a copy of the Particle and Fibre Toxicology research article entitled “Comparative inhalation toxicity of multi-wall carbon nanotubes, graphene, graphite nanoplatelets and low surface carbon black” dated 2013, produced herein as **Exhibit R-24**;



44. A study was published in 2014 whereby the authors studied the carbon nanotubes on pulmonary allergic disease, such as asthma. The study was based on the lack of knowledge in this area in the face of serious concerns on health effects of exposure such as asbestos-like pathogenicity and granuloma formation. The authors concluded that carbon nanotubes can impact the immune system and should be taken in to account for hazard assessment, the whole as appears more fully from a copy of the Particle and Fibre Toxicology article entitled “Inhalation of rod-like carbon nanotubes causes unconventional allergic airway inflammation” dated 2014, produced herein as **Exhibit R-25**;
45. In September 2014, a review article was published and investigated the toxicology of graphene materials in medical applications. The article states that there is only a small contribution regarding the safety profile and toxicology data in the literature on graphene-based materials, and that numerous studies are needed to fill the knowledge gap before being considered as truly ‘safe’ for human use, the whole as appears more fully from a copy of the Archives of Toxicology article entitled “Toxicology of chemically modified graphene based materials for medical application” dated September 19, 2014, produced herein as **Exhibit R-26**;
46. In 2016, a study a study published found that high dose inhalation of graphene in mice causes blackening of the lungs and increased presence of white blood cells (demonstrating an immune response). All mice exposed to graphene (low and high dose) experienced swelling in the lungs which remained present after 7 days. After 28 days, 47% of the graphene was still present in the lungs. The rest of the graphene was redistributed to the liver and spleen through the air-blood barrier. The study confirms potential human health risks from the inhalation of graphene, the whole as appears more fully from a copy of the Particle and Fibre Toxicology article entitled “Biodistribution and toxicity of radio-labeled few layer graphene in mice after intratracheal instillation”, dated February 2016, produced herein as **Exhibit R-27**;
47. In May 2016, a review article was published which explored the toxicity of graphene and graphene-related materials. It showed that in terms of in vivo toxicity, based on experiments in mice, high doses of graphene oxide caused chronic toxicity. It also discussed a study which showed the accumulation of tumor cell growth in response to the presence of nanographene sheets for 24 hours. It also noted the observation of induced pulmonary inflammation, thromboembolism (blood clots) and immune response in the lungs of mice due to nanographene sheets. Finally, in another study, they noted that the injection of graphene oxide into the lungs of mice caused severe and persistent lung injury. The whole as appears more fully from a copy of the International Journal of Nanomedicine article entitled “Synthesis, toxicity, biocompatibility, and biomedical applications of graphene and graphene-related materials” dated May 2016, produced herein as **Exhibit R-28**;
48. In 2016, a study was published which reported that the pulmonary and systemic toxicity of graphite nanoplates may be dependent on their size and/or surface



reactivity. The researchers reported that the smaller the size of the nanoplates, the more accumulation was found in the respiratory system, (Exhibit R-16);

49. In October 2017, a study was published which analyzed the biosafety and antibacterial ability of graphene and graphene oxide by implanting the materials in mice. The results showed that although an antibacterial ability was present at certain concentrations, so was cytotoxicity at certain concentrations. The study suggested a careful approach to concentrations and that more research was required on toxicity of the materials, the whole as appears more fully from a copy of the Nanoscale Research Letter article entitled “Biosafety and Antibacterial Ability of Graphene and Graphene Oxide In Vitro and In Vivo” dated October 12, 2017, produced herein as **Exhibit R-29**;
50. In 2018, a paper called for the need to evaluate the potential impact of graphene materials on human health and the environment and specifically on their biological interactions, the whole as appears more fully from a copy of the Nano article entitled “Safety Assessment of Graphene-Based Materials: Focus on Human Health and the Environment” dated November 2, 2018, produced herein as **Exhibit R-30**;
51. In 2018, a study concluded that nano graphene oxide can induce some protein structural changes and stimulate cytotoxicity against normal cell targets and that their applications in healthy systems should therefore be limited, the whole as appears more fully from a copy of the International Journal of Nanomedicine article entitled “Biophysical, bioinformatical, cellular, and molecular investigations on the effects of graphene oxide nanosheets on the hemoglobin structure and lymphocyte cell cytotoxicity” dated 2018, produced herein as **Exhibit R-31**;
52. Another 2018 study confirmed that there is a lack of systematic understanding of biological interactions of graphene-based nanomaterials and that there should be more knowledge of the long-term toxicity effects to further enhance their applications in the biomedical field to assure the human safety, the whole as appears more fully from a copy of the Nano-Micro Letters article entitled “Review on Graphene-Based Nanomaterials in Biomedical Applications and Risks in Environment and Health” dated 2018, produced herein as **Exhibit R-32**;
53. Despite a large number of publications and the rising number of commercial goods containing graphene, to date no graphene-based biomedical materials have been successfully translated into real-patient use – there is still incomplete understanding of the full biocompatibility of graphene based materials, the whole as appears more fully from a copy of the Advanced Materials Interfaces article entitled “Biocompatibility Considerations in the Design of Graphene Biomedical Materials” dated 2019, produced herein as **Exhibit R-33**;
54. A 2021 study, which states that the hazard evaluation of graphene-based materials is still in its early stage, explores the exposure of lungs to graphene oxide and reduce graphene oxide (rGO). The results found that exposure to graphene oxide in mice induced more differentially expressed genes, affected more functions, and



perturbed more pathways compared to rGO, both in lung and liver tissues. Exposure to graphene oxide increased lipid homeostasis in the liver and activated acute phase response in the lung, changes which have been linked to increase risk of atherosclerosis development (where plaque builds up inside your arteries). Both graphene materials showed genotoxicity in the lungs, damaging genetic information within the cells. The increased interference caused by graphene oxide suggests that further research is needed to rank the risk level associated with different nanomaterials, the whole as appears more fully from a copy of the Toxicology and Applied Pharmacology article entitled “A transcriptomic overview of lung and liver changes one day after pulmonary exposure to graphene and graphene oxide”, dated November 2020, produced herein as **Exhibit R-34**;

55. The current state of science is that when graphene is inhaled, it can get into the lower parts of the lungs (the respirable or alveolar region) and it can lead to an inflammatory response (Exhibit R-18);
56. Almost all studies on the toxicity and safety of graphene nanomaterials agree that graphene or graphene-based materials are toxic under a variety of conditions. They also agree that the factors determining the toxicity of nanomaterials are numerous and not yet well-understood. These factors include structural properties, including defects, surface properties, hydrophilicity (affinity for water), and oxidation state;

IV. The Defendants' Fault

57. Defendant Métallifer was required to take reasonable care to ensure that the Graphene Masks were safe, especially so when it knew that had been imported from China;
58. Defendant Métallifer failed or was negligent in adequately inspecting and/or testing the Graphene Masks before supplying them for use to the public, especially so when it knew that they would be used by children;
59. In all circumstances of this case, the Defendants applied callous and reckless disregard for the health and safety of Class Members;

II. FACTS GIVING RISE TO AN INDIVIDUAL ACTION BY THE PLAINTIFF

60. A.P. is a 13-year-old male student at *École secondaire Val-Mauricie* in Shawinigan, Quebec;
61. On October 8, 2020, it became mandatory for high-school students to wear face mask while on school grounds (Exhibit R-2). These masks were permitted to be made of fabric. A.P. obliged and wore a cloth face mask;
62. On January 18, 2021, it became mandatory for high school students to wear procedural (medical) mask supplied by the Quebec government only (Exhibit R-3). A.P. obliged and wore the face mask that was given to him by his school;



63. A.P. was made to wear his face mask from the time he got onto the school bus to go to school until he returned home on the school bus at the end of the day (it could be removed to eat). He was given enough face masks to change it 3 times per day;
64. A.P. was not permitted to wear any other face masks except for those that were provided to him by his school;
65. After some time wearing the procedural (medical) mask supplied by the Quebec government, A.P. began to experience the following non-exhaustive symptoms:
- a) Itchy throat;
 - b) Feeling that there was “hair” in his throat;
 - c) Discomfort breathing;
 - d) Skin irritation in the areas where his mask had been touching; and
 - e) Worsening of his acne;
66. On Friday, March 26, 2021, A.P.’s father heard on the news of the recall of the grey and blue SNN200642 masks that his child had been wearing due to the potential for “early pulmonary toxicity”. This situation was very frightening to him, his wife, and A.P., as these were the same masks that A.P. had been wearing for the past 2 months for up to 6 hours per day;
67. On Sunday, March 28, 2021, A.P.’s mother received an email from her son’s school stating the following:

Bonjour chers parents,

Nous avons reçu une recommandation de Santé Canada nous demandant de retirer **préventivement** de nos inventaires les **masques procéduriers** SNN200642 bleus avec intérieur gris.

Ces masques, qui représentent une très petite proportion de nos inventaires, ont été distribués en faible quantité au cours des derniers mois. Ils ont donc été peu utilisés et il est peu probable que votre enfant ait uniquement ce modèle en sa possession pour se présenter à l’école demain matin.

Toutefois, si c’était le cas, il pourrait **exceptionnellement** se rendre à l’école demain matin avec un couvre-visage en tissus réutilisable ou un masque procédurier que vous avez à la maison. On lui remettra un masque de procédure conforme dès son arrivée.

Nous vous rappelons que cette démarche est strictement préventive et que la santé et la sécurité de nos élèves et de notre personnel demeurent au coeur de nos priorités.

Nous vous remercions de votre collaboration,



The whole as appears more fully from a copy of the email dated March 28, 2021, produced herein as **Exhibit R-35**;

68. A.P.'s father believes this to be a major downplay of the seriousness of the situation. In consequence, he has lost faith in the school system's ability to protect his child and to keep him safe from harm;
69. On Monday, March 29, 2021, A.P.'s father pulled his son out of school and has decided that he will be home schooled for the remainder of the year;
70. A.P. and his parents are very fearful of the long-term health consequences of having breathed in nanoform graphene particles for a significant amount of time;
71. The Plaintiff's damages are a direct and proximate result of the Defendants' conduct;
72. In consequence of the foregoing, the Plaintiff is justified in claiming damages;

III. FACTS GIVING RISE TO AN INDIVIDUAL ACTION BY EACH OF THE MEMBERS OF THE GROUP

73. Every member of the Class has worn a Graphene Mask;
74. Each member of the Class is justified in claiming at least one or more of the following as damages:
 - a) Physical injuries suffered during the period of time that they were wearing the Graphene Masks, including pain and suffering, throat and nose irritation and discomfort, difficulty breathing, skin irritation and rashes, loss of quality and enjoyment of life;
 - b) Emotional injuries after discovering that they had inhaled the particles in the Graphene Masks, including fear and anxiety of future bodily injury;
 - c) Trouble and inconvenience;
 - d) Out-of-pocket expenses associated with medical monitoring services;
 - e) The creation of a compensation fund to pay for future bodily, moral, and material damages;
 - f) The purchase price of the Graphene Masks(s), if applicable;
 - g) Punitive damages;
75. The Defendants engaged in wrongful conduct, while at the same time obtaining, under false pretences, significant sums of money from Class Members or at Class Members' expense;



76. All of these damages to the Class Members are a direct and proximate result of the Defendant's conduct;

IV. CONDITIONS REQUIRED TO INSTITUTE A CLASS ACTION

A) The composition of the Class makes it difficult or impracticable to apply the rules for mandates to sue on behalf of others or for consolidation of proceedings

77. The Plaintiff is not privy to the specific number of persons who wore Graphene Masks; however, it is safe to estimate that it is in the tens of thousands (if not hundreds of thousands). Nevertheless, the Defendants are in possession of records that could easily establish the size of the class to a reasonable degree of exactitude;

78. Class Members are numerous and are scattered across the entire province of Quebec;

79. In addition, given the costs and risks inherent in an action before the courts, many people will hesitate to institute an individual action against the Defendant. Even if the Class Members themselves could afford such individual litigation, it would place an unjustifiable burden on the courts and, at the very least, is not in the interests of judicial economy. Furthermore, individual litigation of the factual and legal issues raised by the conduct of the Defendants would increase delay and expense to all parties and to the court system;

80. This class action overcomes the dilemma inherent in an individual action whereby the legal fees alone would deter recovery and thereby in empowering the consumer, it realizes both individual and social justice as well as rectifies the imbalance and restore the parties to parity;

81. Also, a multitude of actions instituted in different judicial districts risks having contradictory judgments on questions of fact and law that are similar or related to all members of the Class;

82. These facts demonstrate that it would be impractical, if not impossible, to contact each and every member of the Class to obtain mandates and to join them together in one action;

83. In these circumstances, a class action is the only appropriate procedure and the only viable means for all of the members of the Class to effectively pursue their respective rights and have access to justice;

B) The claims of the members of the Class raise identical, similar or related issues of law or fact

84. Individual issues, if any, pale by comparison to the common issues that are significant to the outcome of the litigation;



85. The damages sustained by the Class Members flow, in each instance, from a common nucleus of operative facts, namely, the Defendants' misconduct;
86. The claims of the members raise identical, similar or related issues of fact or law, namely:
- a) Do the Graphene Masks pose a health danger?
 - b) In the affirmative, should the Defendants have known about the health risks or known about them sooner?
 - c) Did the Defendants fail to adequately test or inspect the Graphene Masks before placing them on the market?
 - d) Are the Defendants liable to pay compensatory damages to the Class Members?
 - e) Are the Defendants liable to pay punitive damages to the Class Members and, if so, in what amount?
 - f) Should the Defendants be ordered to create a compensation fund to pay for Class Members' future bodily, moral, and material damages and, if so, in what amount?
87. The interests of justice favour that this application be granted in accordance with its conclusions;

V. NATURE OF THE ACTION AND CONCLUSIONS SOUGHT

88. The action that the Plaintiff wishes to institute on behalf of the members of the Class is an action in damages;
89. The conclusions that the Plaintiff wishes to introduce by way of an application to institute proceedings are:

GRANT the class action of the Plaintiff and each of the members of the Class;

DECLARE the Defendants solidarily liable for the damages suffered by the Plaintiff and each of the members of the Class;

CONDEMN the Defendants to pay to each member of the Class a sum to be determined in compensation of the damages suffered, and ORDER collective recovery of these sums;

CONDEMN the Defendants to pay punitive damages to each of the members of the Class, and ORDER collective recovery of these sums;

RESERVE the right of each of the members of the Class to claim future damages related to the use of Graphene Masks;



CONDEMN the Defendants to create a compensation fund in an amount to be determined to pay for Class Members' future bodily, moral, and material damages;

CONDEMN the Defendants to pay interest and additional indemnity on the above sums according to law from the date of service of the application to authorize a class action;

ORDER the Defendants to deposit in the office of this Court the totality of the sums which forms part of the collective recovery, with interest and costs;

CONDEMN the Defendants to bear the costs of the present action including expert and notice fees;

RENDER any other order that this Honourable Court shall determine and that is in the interest of the members of the Class;

A) The Plaintiff requests that he be designated as representative of the Class

90. The Plaintiff is a member of the Class;

91. The Plaintiff is ready and available to manage and direct the present action in the interest of the members of the Class that he wishes to represent and is determined to lead the present dossier until a final resolution of the matter, the whole for the benefit of the Class, as well as, to dedicate the time necessary for the present action before the Courts and the *Fonds d'aide aux actions collectives*, as the case may be, and to collaborate with his attorneys;

92. The Plaintiff has the capacity and interest to fairly, properly, and adequately protect and represent the interest of the members of the Class;

93. The Plaintiff has given the mandate to his attorneys to obtain all relevant information with respect to the present action and intends to keep informed of all developments;

94. The Plaintiff, with the assistance of his attorneys, is ready and available to dedicate the time necessary for this action and to collaborate with other members of the Class and to keep them informed;

95. The Plaintiff has given instructions to his attorneys to put information about this class action on their website and to collect the coordinates of those Class Members that wish to be kept informed and participate in any resolution of the present matter, the whole as will be shown at the hearing;

96. The Plaintiff is in good faith and has instituted this action for the sole goal of having his rights, as well as the rights of other Class Members, recognized and protected so that they may be compensated for the damages that they have suffered as a consequence of the Defendants' conduct;



97. The Plaintiff understands the nature of the action;
98. The Plaintiff's interests do not conflict with the interests of other Class Members and further, the Plaintiff has no interest that is antagonistic to those of other members of the Class;
99. The Plaintiff is prepared to be examined out-of-court on his allegations (as may be authorized by the Court) and to be present for Court hearings, as may be required and necessary;
100. The Plaintiff has spent time researching this issue on the internet and meeting with his attorneys to prepare this file. In so doing, he is convinced that the problem is widespread;
- B) The Plaintiff suggests that this class action be exercised before the Superior Court of Justice in the district of Montreal
101. A great number of the members of the Class reside in the judicial district of Montreal and in the appeal district of Montreal;
102. The Plaintiff's attorneys practice their profession in the judicial district of Montreal;
103. The present application is well founded in fact and in law.

FOR THESE REASONS, MAY IT PLEASE THE COURT:

GRANT the present application;

AUTHORIZE the bringing of a class action in the form of an application to institute proceedings in damages;

APPOINT the Plaintiff as representative of the persons included in the Class herein described as:

- All persons residing in Quebec who wore a face mask coated with nanoform graphene materials (the "Graphene Masks") or any other group to be determined by the Court;

IDENTIFY the principal issues of fact and law to be treated collectively as the following:

- a) Do the Graphene Masks pose a health danger?
- b) In the affirmative, should the Defendants have known about the health risks or known about them sooner?
- c) Did the Defendants fail to adequately test or inspect the Graphene Masks before placing them on the market?



- d) Are the Defendants liable to pay compensatory damages to the Class Members?
- e) Are the Defendants liable to pay punitive damages to the Class Members and, if so, in what amount?
- f) Should the Defendants be ordered to create a compensation fund to pay for Class Members' future bodily, moral, and material damages and, if so, in what amount?

IDENTIFY the conclusions sought by the class action to be instituted as being the following:

GRANT the class action of the Plaintiff and each of the members of the Class;

DECLARE the Defendants solidarily liable for the damages suffered by the Plaintiff and each of the members of the Class;

CONDEMN the Defendants to pay to each member of the Class a sum to be determined in compensation of the damages suffered, and ORDER collective recovery of these sums;

CONDEMN the Defendants to pay punitive damages to each of the members of the Class, and ORDER collective recovery of these sums;

RESERVE the right of each of the members of the Class to claim future damages related to the use of Graphene Masks;

CONDEMN the Defendants to create a compensation fund in an amount to be determined to pay for Class Members' future bodily, moral, and material damages;

CONDEMN the Defendants to pay interest and additional indemnity on the above sums according to law from the date of service of the application to authorize a class action;

ORDER the Defendants to deposit in the office of this Court the totality of the sums which forms part of the collective recovery, with interest and costs;

CONDEMN the Defendants to bear the costs of the present action including expert and notice fees;

RENDER any other order that this Honourable Court shall determine and that is in the interest of the members of the Class;

DECLARE that all members of the Class that have not requested their exclusion, be bound by any judgment to be rendered on the class action to be instituted in the manner provided for by the law;



FIX the delay of exclusion at thirty (30) days from the date of the publication of the notice to the Class Members, date upon which the members of the Class that have not exercised their means of exclusion will be bound by any judgment to be rendered herein;

ORDER the publication of a notice to the members of the group in accordance with article 579 C.C.P. within sixty (60) days from the judgment to be rendered herein in LA PRESSE, the MONTREAL GAZETTE and LE SOLEIL;

ORDER that said notice be available on the Defendant's website(s), as well as its Facebook page(s) and Twitter account(s) with a link stating "Notice to Graphene Masks Users";

RENDER any other order that this Honourable Court shall determine and that is in the interest of the members of the Class;

THE WHOLE with costs, including all publication and dissemination fees.

Montreal, April 6, 2021

(s) Andrea Grass

CONSUMER LAW GROUP INC.

Per: Me Andrea Grass

Attorneys for the Plaintiff

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