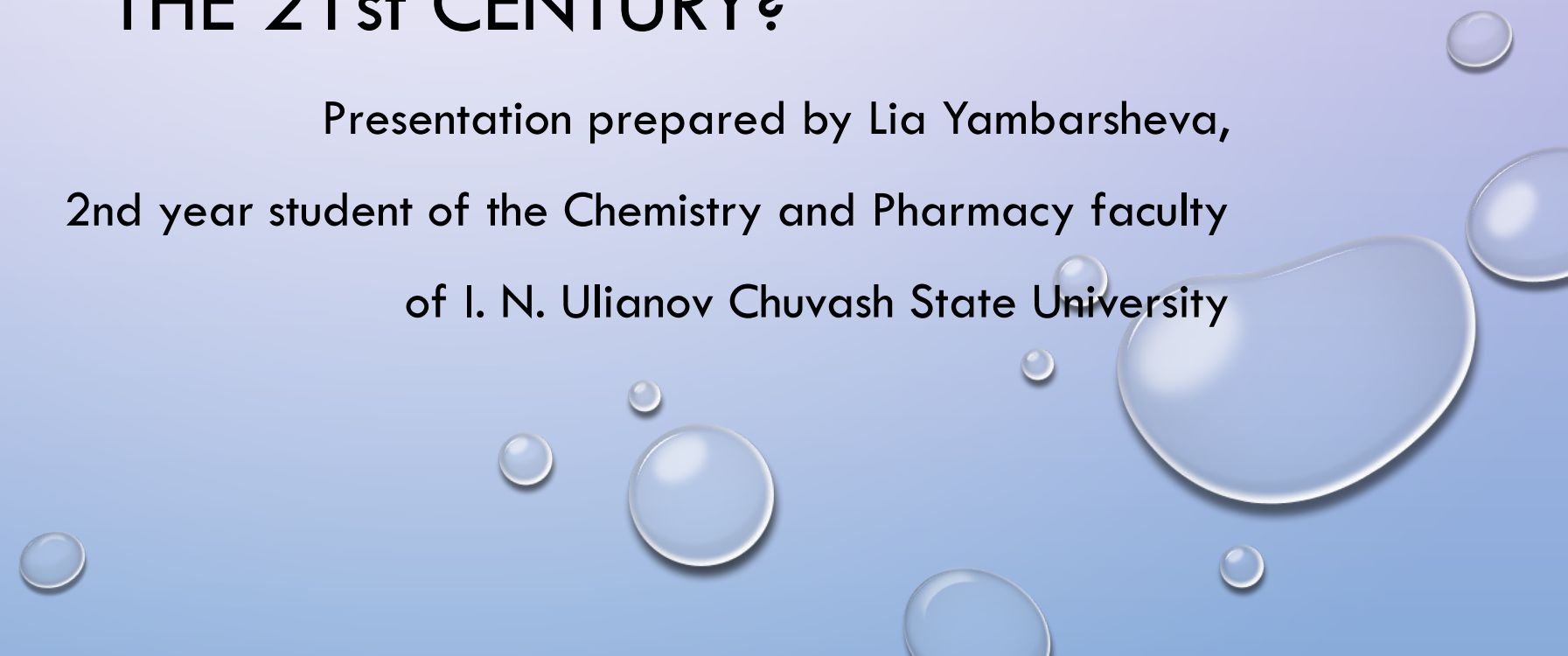




# PLASTIC IS ONE OF THE CHALLENGES OF THE 21<sup>st</sup> CENTURY?

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PLASTIC IS ONE OF THE CHALLENGES OF THE 21<sup>st</sup> CENTURY.

Plastic is wonderful because it's durable...

Plastic is terrible because it's durable...



○ **The goal** of my report is to raise public awareness of the facts how dangerous plastic may be for humans unless it is recycled.

Hereby the **tasks** arise considering of which is indispensable for successfully achieving the targeted goal. They are as following:

- 1) the scientific definition of plastic and its chemical composition;
- 2) hazardous effects of plastic affecting environment and humans;
- 3) quantity of plastic ending up in environment as a hazardous waste;
- 4) effective ways of challenging plastic waste crisis.

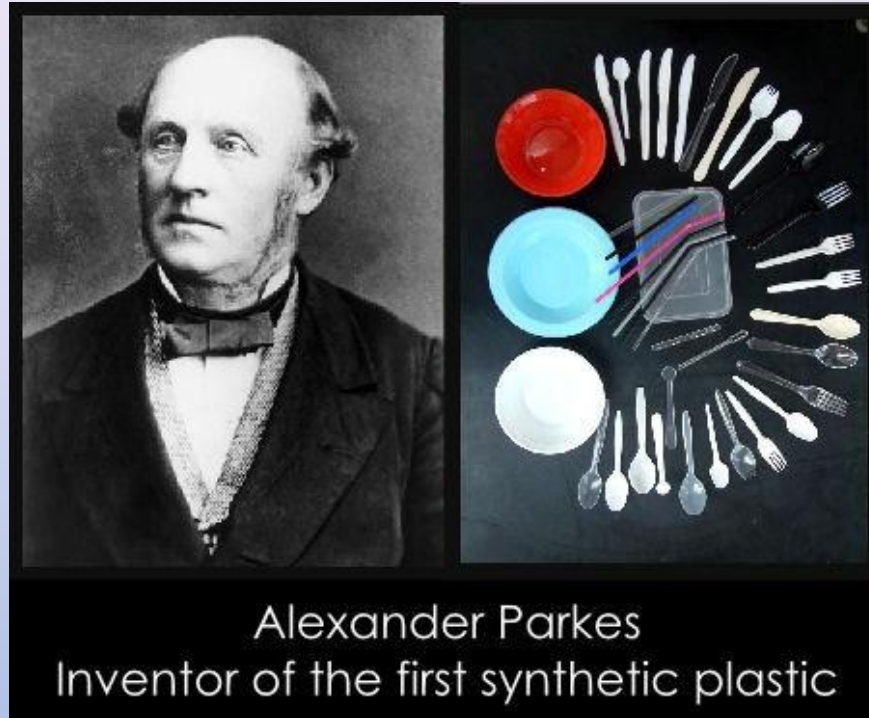
**Object** of study are products made of different types of plastic.

**Subject matter** of research is raising public awareness of all hazards of plastic to mankind. The research is done using **methods** of analysis and synthesis of special scientific literature, UN environmental program annual reports and documents, and mass media sources in Russian and English. The **practical value** of the research is making people aware of plastic waste crisis, encouraging them to join actions to ban single-use plastics, to reduce plastic use, to reuse and recycle plastics.

# SOME HISTORICAL FACTS ON PLASTIC INVENTION (UK)

Alexander Parkes (1813 – 1890) a metallurgist and inventor from Birmingham , England. In 1856 he created Parkesine, the first man-made plastic which was exhibited at the 1862 London international exhibition.

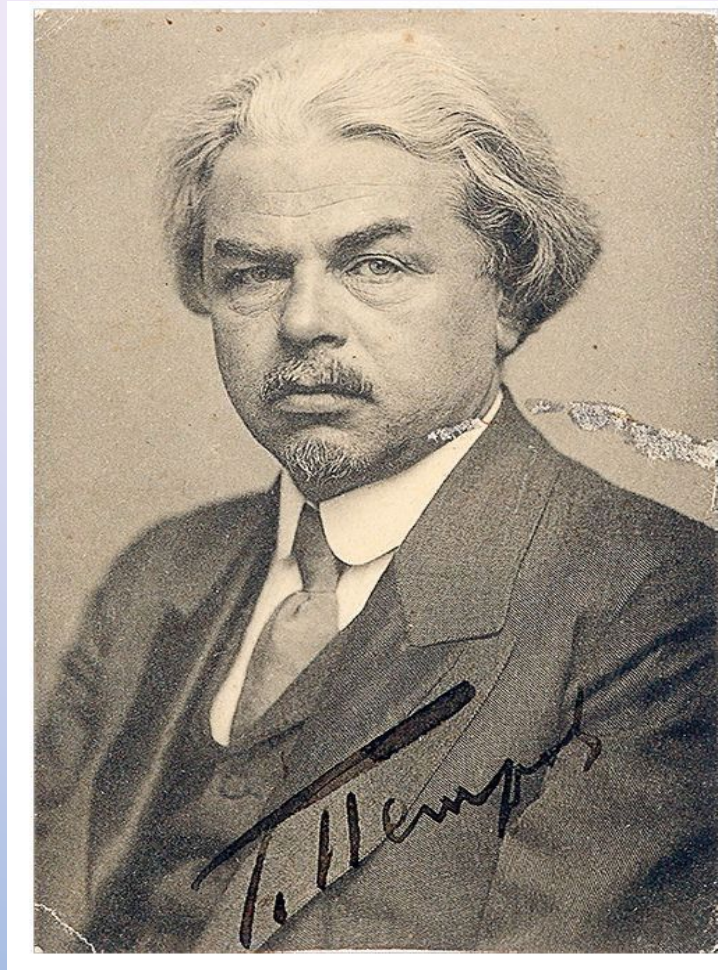
Parkesine anticipated many of the modern aesthetic and utility uses of plastics.





# SOME HISTORICAL FACTS ON PLASTIC INVENTION (SOVIET RUSSIA)

- Petrov, Grigory Semenovich (1886-1957), Soviet chemist, father of Russian plastic which was created by him in 1911 out of resin solidifying into carbolic plastic. The common name for it was “карболит” - carbolite.



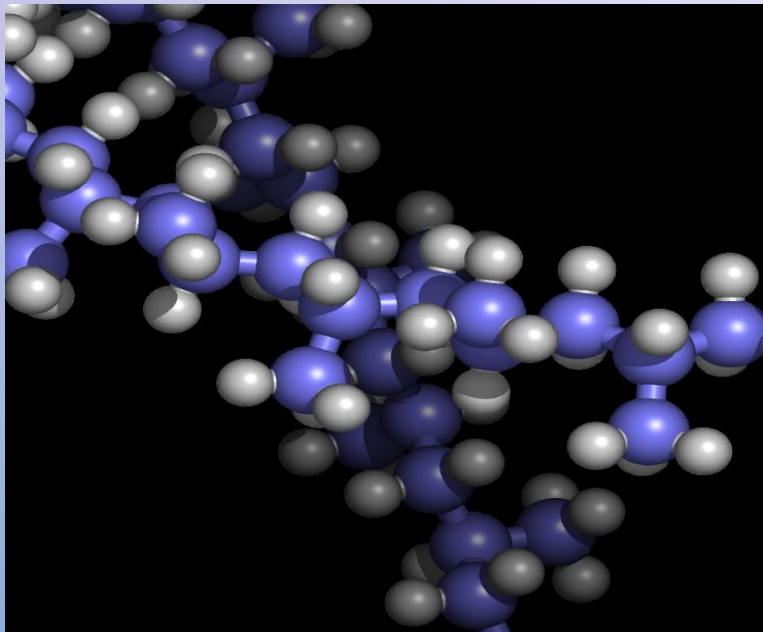
PLASTICS ARE ORGANIC MATERIALS BASED ON POLYMERS THAT CAN SOFTEN WHEN HEATED AND TAKE A CERTAIN STABLE FORM UNDER PRESSURE






# THE CHEMICAL COMPOSITION OF PLASTIC

The raw materials for the vast majority of types of plastics are coal, natural gas and oil. Of these, by chemical reactions, simple (low molecular weight) gaseous substances are isolated - ethylene, benzene, phenol, acetylene, etc. which are then converted into synthetic polymers. The excellent properties of the polymers are explained by the presence of high molecular weight bonds with a large number of initial (primary) molecules.





# THE FOLLOWING IS A LIST OF TYPES OF PLASTIC THE MODERN WORLD SIMPLY CANNOT DO WITHOUT BECAUSE PLASTICS HAVE

- HIGH CHEMICAL RESISTANCE
  - CORROSION RESISTANCE
  - LIGHT FASTNESS AND WEATHER RESISTANCE
  - HIGH ABRASION RESISTANCE
  - EXCELLENT MACHINABILITY
  - VERY GOOD WELDABILITY
  - THEY ARE PHYSIOLOGICALLY HARMLESS WHEN CONTACTED
- 



# PET OR PETE - LAVSAN (POLYETHYLENE TEREPHTHALATE)



HDPE OR PE HD - THIS IS THE DESIGNATION FOR  
HIGH DENSITY POLYETHYLENE AND LOW PRESSURE  
POLYETHYLENE



PVC OR V IS THE MARKING OF POLYVINYL  
CHLORIDE





# LDPE OR PEBD - DESIGNATION OF LOW DENSITY POLYETHYLENE AND HIGH PRESSURE



# PP - MARKING OF POLYPROPYLENE



# PS - POLYSTYRENE





# ○ OR OTHER— POLYAMIDE, POLYCARBONATE AND OTHER TYPES OF PLASTICS



Many household products are made of plastic. Some of them may contain chemicals which are dangerous for humans' health. Bisphenol A (BPA) is found in plastic bottles. BPA has a negative impact on newborns and fetuses, brain, prostate gland. Safe plastic bottles should have a BPA-free label.



Some plastics contain phthalates. Phthalates are endocrine disruptors. They suppress male and female hormones in the body and can lead to cancer, especially hormone-sensitive cancers like breast cancer. It is recommended to use only microwave-safe, phthalate-free plastic containers and plastic wrap when heating foods in the microwave. Avoid PVC and personal care products that list phthalates among the ingredients.



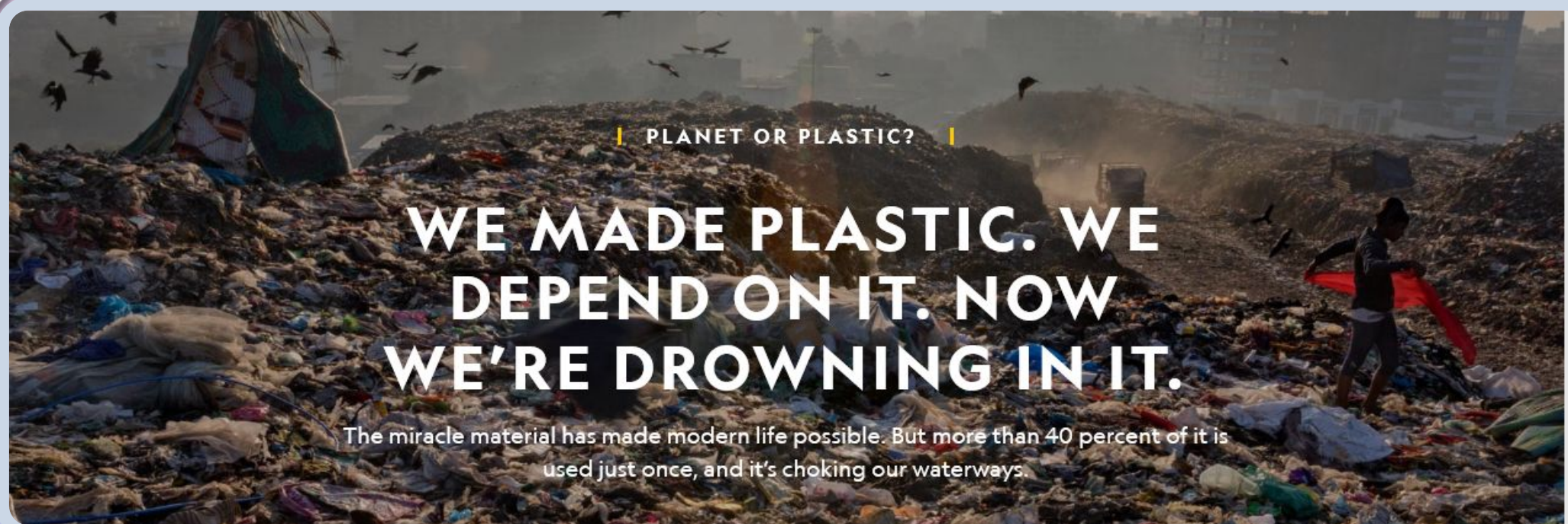




# ***PLASTIC OCEAN***

Type of waste	Decomposition time
Fruit peel	2-5 weeks
Food scraps	About 1 month
Newspapers	1-3 year
Cigarette butts	1-5 years
Canning jars	10-50 years
Polymer film	30-40 years
Lighters	100 years
<b>Plastic bags and plastic bottles</b>	<b>100- 1000 years</b>
Glass bottles	4000 years





| PLANET OR PLASTIC? |

**WE MADE PLASTIC. WE  
DEPEND ON IT. NOW  
WE'RE DROWNING IN IT.**

The miracle material has made modern life possible. But more than 40 percent of it is used just once, and it's choking our waterways.

**IT'S HIGH TIME TO RETHINK PLASTIC RECYCLING BEFORE IT IS  
LATE!**

**WE WOULD LIKE YOU TO JOIN THE ACTION TO BAN SINGLE-USE PLASTIC, TO REDUCE THE USE OF PLASTIC, TO REUSE  
IT WHENEVER IT IS POSSIBLE, TO RECYCLE PLASTIC TO SAVE OUR PLANET.**





OUR PLANET IS VERY FRAGILE. ONUS FOR ITS FUTURE IS ON US! .



## CONCLUDING REMARKS

The attitude to plastic in the contemporary world is twofold. On the one hand it is next to impossible to imagine modern life without plastic. It is everywhere both in all industries and in households due to its durability and availability as it is rather cheap. On the other hand some types of plastic contain hazardous chemicals. Products made of such plastic – food containers, bottles, toys, etc. - when heated and exposed to humans may bring about a lot of harm to their health. Anyhow the greatest damage to mankind results in used plastic when hundreds of million tons of it worldwide go to landfills and oceans doing harm to world ecosystem along with global warming. Used plastic is expected to be an irreversible challenge to mankind unless nations worldwide agree to ban single-use plastic, to reduce the use of plastic, reuse it whenever it is possible, and recycle it. To meet this end it is necessary to educate people, making them aware of the truth about plastic and products made of plastic, urging them to join the action to save the planet from plastic.

We hope our report is persuasive enough to make people rethink the challenging problem and express their will to join the action of recycling plastic.



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