



## Research Article

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# Composition - Biotoxic Activity and Toxic Ptes and Issues of Environment Effects

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**Abstract:** The objective of the paper is to figure out what are **COMPOSITION - Biotoxic activity and toxic PTEs and Issues of Environment effects.**

By using descriptive method for primary model, synthesis methods and process analysis and analysis of difficulties and discussion, we have already noted that in various geological, geochemical and geostructural conditions there are different associations of potentially toxic elements-impurities in hydrocarbons. And Zones of entry of such biototoxicants into the environment located directly near fuel and energy facilities processing and consuming hydrocarbons raw materials, mainly fuel oils enriched with metals. Propagation range and levels atmospheric pollution depend on the power of the source, emission conditions, time impact, meteorological, climatic, relief and other conditions.

**Keywords:** Divorce, Causes, Effect, Compensation, Arbitrariness.

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## INTRODUCTION

With a relatively small distance, for example, in suburban areas adjacent to large thermal power plants areas of agriculture, there is a change in the share of environmental pollution with metals toxicants from aerosol to wastewater and waste accumulated in landfills, ash dumps etc. The highest concentration activity in water bodies in relation to metals biotoxicants, in descending order: suspended matter, bottom sediments, plankton, immobile and sedentary benthos, fish and birds feeding on aquatic biota.

For the purposes of the study, metals are of interest in significant quantities found in natural hydrocarbon raw materials and posing a serious danger to the environment.

Anomalous contents of V and a number of other metals are known in the Pudozhgorsk area (Karelia) and Kachkanar (Urals). On the Onega Peninsula in the Medvezhyegorsk region in the 80s in the largest vanadium-uranium deposit was discovered in the basement rocks, relating to uranium reserves (but not standards) to the 5 largest deposits in the world.

The paper presents related studies and **analysis with COMPOSITION - Biotoxic activity and toxic PTEs and Issues of Environment effects.**

## Research Questions

Question 1: What are related researches and what are **COMPOSITION - Biotoxic activity and toxic PTEs and Issues of Environment effects?**

## METHODOLOGY

Authors have used qualitative and analytical methods, descriptive method for primary model, synthesis and discussion methods in this paper.

We also used historical materialism method.

## MAIN FINDINGS

Analysis of key issue:

First, the process is relatively obvious and associated with the processing and disposal of oil. Table below lists individual examples of metal concentration in products derived from heavy sour oil specific deposits. As can be seen, the concentration coefficient of metals at the final the stage of oil processing - coke for the Usinsk field reaches 12.8. Metal Concentration in Products Derived from Heavy Sour Oil. It has already been emphasized above that the most toxic PTEs are in the form of sulfur connections. The formation of PTE can occur directly in humid air.

**Table 1.** Metal Concentration in Products Derived from Heavy Sour Oil

Deposit, characteristics of raw materials and distillation products	Density, t/m <sup>3</sup>	Content		
		S, %	V2O5, g/t	Ni, g/t
<b>Karazhanbas (Mangyshlak):</b>				
raw oil	0.939	1.5	295	-
tar	0.989	2.9	554	-
coke	-	4.2	2358	-
<b>Arian (Ural-Volga region):</b>				
raw oil	0.891	3.04	268	-
tar	-	4.40	429	-
coke	-	5.0	2429	-
<b>Ubinskoye (GPP), y1+y2:</b>				
raw oil	0.942	2.5	132	42
fuel oil (over 450°y)	-	-	299	89
coke	-	-	1687	638
<b>Yaregskoye (CCI):</b>				
raw oil	0.948	1.09	80	-
fuel oil (over 450°C)	1.022	1.36	164	-
coke	-	2.6	236	-

It has already been emphasized above that the most toxic PTEs are in the form of sulfur connections. The formation of PTE can occur directly in humid air.

The environment surrounding TPP, fly ash microparticles and significant volumes, released into the atmosphere during the combustion of sulfurous coals or fuel oils. For example, a thermal power plant with an average capacity for coal of 2 million tons /

year, with a content of 2% sulfur in coal, they are emitted into the air at least 80 thousand tons. As a result, not only “sour” rains fall on the soil, but also sulfur and oxide PTE compounds present in fuel, Table 2. Environmentally heavy meteorological situations during smog in urban agglomerations and industrialized regions is a direct consequence of these processes.

**Table 2.** Comparative toxicological characteristics of the metals that make up the volatile ash (mg/kg)

Dose	Fe	FeSO4	Fe(NO3)2	Cr	Cr2(SO4)2	K2Cr2O7	fly ash sample
MPD	1100	-	-	-	fifty	ten	7
LD50	2200	35	-	-	200	442	55
LD100	3200	50	-	-	1000	800	100

Note:

1. Doses are given in terms of metal. The experiments were carried out on mice.
2. MTD - maximum tolerated dose for survival.
3. LD50 - dose that causes the death of 50% of animals.
- LD100 - dose that causes the death of 100% of animals.

Along with the depletion of resources of traditional, relatively safe oil for environment, production of heavy oil and oil sands will increase, often enriched with biotoxic elements and sulfur. Therefore, it is necessary to timely standardize methods and expand the range of both chemical-analytical and medical biological studies of hydrocarbons of raw materials and processed products, so as not to aggravate unfavorable ecological situation, especially in the central, most populated regions of Russia with high

energy consumption and many facilities using fuel oil enriched with both PTE and S compounds.

Among the biologically active toxic elements, the highest concentrations in hydrocarbons reach such as: vanadium, nickel, cobalt, mercury, sulfur, less often uranium and arsenic. But if the presence of hydrogen sulfide is detected in raw materials by smell almost immediately, then most other active toxicants go unnoticed. So, mercury vapor, arsenic, radioelements

can be detected in a timely manner only with a special study, which emphasizes the need for not only an ordinary study of the qualitative composition of oil (gases), but also the most common toxic components in them. Hence the need in identifying the geological and geochemical patterns of accumulation and distribution of toxic elements in natural hydrocarbons in order to timely emphasize attention, already at the stage of search and exploration, to the need for detailed analysis of the composition of hydrocarbons in certain regions for certain components.

As noted above, we do not consider the toxic components of hydrocarbons- compounds of the oil itself: benzenes, 3, 4-benz-(a)-pyrenes, etc. They, like other components of crude oil, refer to the phenomena of mainly surface, obvious environmental environmental damage, i.e. to the form of defeat that is associated with any surface oil spills. They are relatively well studied and it is for them a variety of protective, control and rehabilitation measures are being developed. Not We also paid special attention to the study of sulfur content in oil and gases, since according to There is an extensive research and reference literature on these issues.

#### **Prevalence of PTE in Rocks and Hydrosphere**

Since the entire ontogenesis, both OM and HC, takes place in the sedimentary environment, it is necessary to characterize, at least in the shortest possible way, the main sources of PTE inflow into rocks and waters of the sedimentary cover and their distribution.

We have already noted that in various geological, geochemical and geostructural conditions there are different associations of potentially toxic elements-impurities in hydrocarbons.

## **DISCUSSION AND CONCLUSION**

In the course of atmospheric precipitation, the air environment is purified and metals and biotoxicants settle, are deposited by soils, surface and ground waters, accumulated by local biota. Zones of entry of such biotoxicants into the environment located directly near fuel and energy facilities processing and consuming hydrocarbons raw materials, mainly fuel oils enriched with metals. Propagation range and levels of atmospheric pollution depend on the power of the source, emission conditions, time impact, meteorological, climatic, relief and other conditions. As you move from the source of emission, there is a decrease in the concentrations of metals in the form of aerosols in air, usually exponentially.

The level of knowledge of impurity components in oil is also insufficient, within even explored deposits. As can be seen from the list, the richness of oil in microimpurities of various elements - is indisputable, but the analyzes themselves with the

completeness of the studies, similar to those given above, to unfortunately too few.

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#### **Conflicts of interest**

There is no conflict of interest

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