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## **Maintenance of ecological safety at use halons after regeneration as fire extinguishants in civil aircraft**

### **Halon are used as fire extinguishants for application in fire extinguishing syst**

- ~~✂~~ Halon 1211 (12B1) is used in hand-held portable extinguishers for the protection of :  
fires arising in the cabin or cockpit.
  
- ~~✂~~ Halon 1301 (13B1) is used in built in fire- extinguishing systems in both cargo and  
large aircraft and aircraft powerplants of foreign production.
  
- ~~✂~~ Halon 2402 (114B2) is used in built in fire- extinguishing systems in both cargo and  
large aircraft and aircraft powerplants.
  
- ~~✂~~ Halons 1211 and 2402 after regeneration are used for ground and flight tests.

## **The production of halons is forbidden**

- ✍✍ The Parties to Montreal Protocol have decided to stop production of halons 1211, 1301 and 2402
- ✍✍ Halons 1211, 1301 and 2402 are allowed to application and are most effective substances use application in fire extinguishing systems of aircrafts.
- ✍✍ A leak of halons in atmosphere from fire extinguishing systems, outputing from exploitation is p
- ✍✍ The reuse Halons 1211, 1301 and 2402 in fire extinguishing systems of aircrafts without rege their quality by consensus of standards is forbidden.
- ✍✍ The system of the account, collection, storage and regeneration of halons is created
- ✍✍ The State Service of civil aviation of ministry of the transport of Russian Federation has entrus of functions of the departmental informational - analytical center on halons destroying the ozon

## Regeneration of halons

- ✍✍ The regeneration is made on special fixed equipments developed on the technical project Gosoborona - a complex of technological processes on clearing of halons from impurities.
- ✍✍ Condition for regeneration of halons is the consensus of concentration of main substance to requirements of standards.
- ✍✍ In result of Regeneration, halons completely restore the qualities and can be reused in fire extinguishers of specified life by consensus of standards.
- ✍✍ Losses of regenerations do not exceed 10 - 15 % from a mass of an initial product depending on type of halon.

## **Problems, connected with stop of production of halons**

- ✍✍ The stocks of new Halons 1211, 1301 and 2402 practically are spent.
- ✍✍ There is magnification of an amount of halon 1301 because of purchasing foreign aircrafts and domestic production.
- ✍✍ The same effective substances as the halons 1211, 1301 and 2402 used as fire extinguishers in extinguishing systems of aircrafts do not exist.
- ✍✍ The losses of regenerations of the halon by regeneration technologies consensus, existing in Russia, of halons from fire extinguishers make significant magnitude.
- ✍✍ The utilization technology of sub-standard halons and equipments is absent.

## **Prime measures for a solution of problems on maintenance of a fire protection and exploitation**

- ✍️ Development of new regeneration technologies with the reduced technological losses.
- ✍️ Development of the special equipment on collection of halons from fire extinguishers for further use.
- ✍️ Maintenance of a replacement of halons on alternate substances is necessary. (The work on : 1211 on the halon 227?? is conducted.)
- ✍️ Creation of bank of halons for civil aviation is necessary.
- ✍️ Creation of an information system on halons is necessary.
- ✍️ Tutoring staff of the aviation enterprises on use, storage, collection and transportation of halons is necessary.
- ✍️ Development of normative, instructive and other documents on operation of halons is necessary.
- ✍️ Development and introduction of the utilization technology of halons is necessary.