Viscosity

In contrast to the fuel used in boilers earlier, CWS has sharply apparent viscosity. Moreover, the suspension is subject to change over time. As a result, it is preferable that new fuel has pseudo-plastic and thixotropic properties. Typically, the aim in the preparation of CWS is to get a viscosity of about 1000 Pa*s.

Conclusion

To sum up, coal-water fuel got an impulse for the development as alternative to fuel oil due to the oil crisis in 1973. The process of development took place in many countries and the usefulness of CWS has been proven. However, in 1986 there was a reverse oil crisis. Oil prices have shifted to the mark "low and stable." This is a serious factor, which prevents the formation of a market for CWF.

According to UN statistics, 70% of fossil fuel in the world is coal.This means that the role assigned to coal, is very important. In this regard, if the water-coal fuel can be implemented as high-quality water-coal slurry with low ash and sulfur content, there is no doubt that it takes its place as the power source to minimize the negative impact on the environment, thereby displacing oil in the next century.

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HYBRID ELECTRIC VEHICLE

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«A hybrid electric vehicle (HEV) is hybrid of gasoline and electric vehicle which combines a conventional internal combustion engine (ICE) propulsion system with an electric propulsion system (hybrid vehicle drivetrain)» [1]. Hybrid electric vehicles are powered by an internal combustion engine or other propulsion source that can be run on conventional or alternative fuel and an electric motor that uses energy stored in a battery. HEVs combine the benefits of high fuel economy and low emissions with the power and range of conventional vehicles.

HEVs are classified onparallel, series and mild(full) hybrids:

The parallel hybrid uses both engines an internal combustion and electric engine. In the parallel hybrid, the conventional and electric engines are attached to one transmission, which allows both of them to power the car at the same time. The fuel

tank supplies gasoline to the engine while the generator charges the batteries. This type of hybrid is more suitable for traveling long distances. More drivers prefer parallel hybrids to series hybrids because they are more fuel-efficient. Examples of parallel hybrid vehicles are the Honda Insight, the Chevy Malibu and the Toyota Prius.

In a series hybrid, the electric motor handles all the driving and the gasoline engine only recharges the battery pack. When the driver starts the engine, power is received from the battery pack to the electric motor which turns the wheels. On longer trips (beyond 50 miles or so), the gas engine provides the power. Series hybrids are more expensive than parallel hybrids because they carry larger batteries to provide power for higher speeds. The Fisker Karma is an example of a series plug-in hybrid.

There's also a variation called a mild hybrid, the least expensive of the hybrid bunch. The mild hybrid doesn't function on just the electric engine. Its electric motor assists the gas engine when more power is needed. When the car begins to slow down or sits still, the control unit shuts down the engine so the vehicle is not burning fuel or polluting the air like a conventional car. When the driver puts the car in gear or accelerates, the battery starts the motor again.

Some of the advanced technologies typically used by hybrids include:

1. Regenerative Braking. The electric motor applies resistance to the drivetrain causing the wheels to slow down. In return, the energy from the wheels turns the engine, which functions as a generator, converting energy normally wasted during coasting and braking into electricity, which is stored in a battery until needed by the electric motor.

2. «Electric Motor Drive/Assist. The electric motor provides additional power to assist the engine in accelerating, passing, or hill climbing» [2]. This allows a smaller, more efficient engine to be used. In some vehicles, the motor alone provides power for low-speed driving conditions where internal combustion engines are least efficient.

3. «Automatic Start/Shutoff. Automatically shuts off the engine when the vehicle comes to a stop and restarts it when the accelerator is pressed» [2]. This prevents wasted energy from idling.

Pros of HEVs:

- quiet and quick;
- home recharging;
- cheaper to operate;
- no Tailpipe emissions;

Cons of HEVs:

- limited range;
- long refueling time;
- higher cost;
- lack of consumer choice.

Nearly all credible researchers believe that electric cars, even in coal-dependent regions, have a smaller environmental impact than conventional vehicles. In regions with a strong grid mix of renewable - such as hydro, wind and solar - or for electric car drivers with home solar, the emissions benefits are dramatic. You can expect some

analysts to argue the opposite. But it's incontrovertible that HEVs don’t have a tailpipe, and therefore provide a real benefit to improving air quality for you, your family, and your community.

HEVs have great because they have many advantages, such as, the sustainability, efficiency and a sufficient power reserve. The main advantage of HEV is the possibility of using not only the electric engine but also of the ICE. It isa breakthrough technology in the automotive industry. The problems faced by manufacturers of electric cars today, will be resolved in the nearfuture.

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NUTZBARMACHUNG DES ATOMMÜLLS

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Abstract: Im Artikel wird die Nutzung des Atommülls als zukunftsträchtige Richtung der heutigen Atomenergiewirtschaft betrachtet. Die Information über Verwendung desAtommülls in Schnellreaktoren in Russland wirderörtert.

Schlusselwörter: Atommüll, Schnellreaktor, Kernkraftwerk

Die Aktualität dieses Artikels besteht darin, die Möglichkeitder Verwendung desAtommülls für Stromerzeugung zu betrachten.Das Objekt des gegenwärtigen Artikels ist Atommüll und seine Nutzung in Schnellreaktoren.

Radioaktive Abfälle, umgangssprachlich meistAtommüllgenannt, sindradioaktiveStoffe, die nicht nutzbar sind oder aufgrund politischer Vorgaben nicht mehr genutzt werden dürfen. Der meiste Atommüll entsteht durch die Nutzung derKernenergie. Die sichereEndlagerunghochradioaktiver Abfälle ist eine vordringliche Aufgabe für die Menschheit im 21.Jahrhundert.

Der Schnellreaktor in Belojarsk ist der bislang stärkste seiner Bauart. 789 Megawatt Nettoleistung sind das Ziel, wenn er in rund drei Monaten auf Maximallast arbeitet. Doch diesen Rekord wird der BN-800 bestimmt nicht lange halten. Derzeit sind schon neue Projekte geplant. Weitere Schnellreaktoren sollen nächstes Jahr schon gebaut werden. Unter anderem ist einer davon ebenfalls in Belojarsk. Der Nachfolger heißt dann BN-1200 und wird laut aktueller Planung mit 1130 Megawatt Nettoleistung 2020 mit dem Stromnetz synchronisiert.

Russland macht mobil für sauberen Atomstrom und Abrüstung der Nuklearwaffen – und das mit hohem Wirkungsgrad. Denn die Konkurrenz zum Schnellreaktor, sogenannte Leichtwasserreaktoren, können üblicherweise nur ein bis zwei Prozent des Brennstoffs verwenden. Baureihen ähnlich dem BN-800 verbrauchen dabei weit mehr als die Hälfte des Materials. Dazu kommt natürlich noch ein Faktor, der gar nicht