

MAKE	1987 & Earlier	1991	1993	1996	1997	1998	1999	2000	2001	2003	2005	2007	2008	2010	2012	2014 & Later
Alfa Romeo	IAT/Hybrid (Silicate)								Hybrid (Si)		OAT					
Audi	IAT/Hybrid (Silicate)			OAT										Lobrid (Si-OAT)		
Bentley	IAT/Hybrid (Silicate)								Hybrid (Si)		OAT			Lobrid (Si-OAT)		
BMW	IAT/Hybrid (Silicate)								Hybrid (Si)		Lobrid (Si-OAT)					
Chrysler	IAT/Hybrid (Silicate)								Hybrid (Si)				OAT			
Citroen	IAT/Hybrid (Silicate)		OAT													
Ferrari	IAT/Hybrid (Silicate)								Hybrid (Si)		OAT					
Fiat	IAT/Hybrid (Silicate)								Hybrid (Si)		OAT					
Ford	IAT/Hybrid (Silicate)		OAT													
Holden	IAT/Hybrid (Silicate)							Hybrid (Si)		OAT						
Honda	Hybrid (Phosphate) / Lobrid (P-OAT)															
Hyundai	Hybrid (Phosphate) / Lobrid (P-OAT)															
Isuzu	IAT/Hybrid (Silicate)							Hybrid (Si)		OAT						
Jaguar	IAT/Hybrid (Silicate)					OAT										
Jeep	IAT/Hybrid (Silicate)							Hybrid (Si)							OAT	
Kia	Hybrid (Phosphate) / Lobrid (P-OAT)															
Land Rover	IAT/Hybrid (Silicate)					OAT										
Lexus	Hybrid (Phosphate) / Lobrid (P-OAT)															
Lotus	IAT/Hybrid (Silicate)					OAT										
Mazda	Hybrid (Phosphate) / Lobrid (P-OAT)															
Mercedes Benz	IAT/Hybrid (Silicate)								Hybrid (Si)						Lobrid (Si-OAT)	
Mitsubishi	Hybrid (Phosphate) / Lobrid (P-OAT)															
Nissan	Hybrid (Phosphate) / Lobrid (P-OAT)															
Peugeot	IAT/Hybrid (Silicate)			OAT												
Porsche	IAT/Hybrid (Silicate)			OAT										Lobrid (Si-OAT)		
Renault	IAT/Hybrid (Silicate)			OAT												
Saab	IAT/Hybrid (Silicate)								OAT							
SEAT	IAT/Hybrid (Silicate)				OAT									Lobrid (Si-OAT)		
Skoda	IAT/Hybrid (Silicate)					OAT								Lobrid (Si-OAT)		
Smart						IAT/Hybrid (Si)			Hybrid (Si)						Lobrid (Si-OAT)	
Subaru	Hybrid (Phosphate) / Lobrid (P-OAT)															
Suzuki	Hybrid (Phosphate) / Lobrid (P-OAT)															
Toyota	Hybrid (Phosphate) / Lobrid (P-OAT)															
Volkswagen	IAT/Hybrid (Silicate)			OAT										Lobrid (Si-OAT)		
Volvo	IAT/Hybrid (Silicate)								Hybrid (Si)							

What do these terms mean: IAT, Hybrid, Lobrid, P-OAT, Si-OAT, OAT?

These terms refer to the kind of corrosion inhibitor package that is present in the coolant formulation.

The term "IAT" stands for "Inorganic Additive Technology" - sometimes referred to as "conventional" technology - which is a traditional coolant technology that contains combinations of certain mineral/inorganic corrosion inhibitors such as phosphate, amine, borate, silicate, nitrite and nitrate. This inhibitor technology has been used for many years and works by forming a protective "blanket layer" that insulates the system metals from the cooling fluid. Coolants incorporating IAT/conventional inhibitors typically have a shorter service life.

The term "OAT" stands for "Organic Additive Technology". OAT coolants are those containing only organic additive technology inhibitors, without using mineral inhibitors such as silicate, nitrite, nitrate, phosphate etc. These inhibitors protect against corrosion in a different way to those mineral inhibitors. Initially, they are adsorbed onto the surface they're designed to protect and, in doing so, create a bonded molecular layer that prevents further corrosion. These coolants have extended service lives because the inhibitors do not chemically deplete in the same way as mineral inhibitors.

"Hybrid" technology coolants - sometimes referred to as "HOAT" coolants - utilise a combination of mineral inhibitors with OAT inhibitors. The combination often depends on regional preferences. For example, in Europe, hybrid technology coolants generally contain combinations of silicates with OAT inhibitors (with no phosphates), while in Japan, hybrid technology coolants generally contain combinations of phosphates with OAT inhibitors (with no silicates or amines).

The term "Lobrid" refers to a subset of "hybrid" technology coolants that utilise predominantly OAT inhibitors combined with lower levels of mineral inhibitors. This term can apply to both "Si-OAT" coolants ("Si-OAT" = Silicated Organic Additive Technology) and "P-OAT" coolants ("P-OAT" = Phosphated Organic Additive Technology).

What are "Type A" and "Type B" coolants?

These terms come from the Australian Standard for engine coolants for passenger cars and light duty vehicles - AS 2108-2004. Unlike the terms referred to above (eg OAT, hybrid etc), these terms do not have anything to do with the inhibitor package that is present in the coolant. Instead, whether or not a coolant is a "Type A" or "Type B" coolant depends on what "freezing point" the coolant has (in other words, how much glycol ("anti-freeze") is present in the fluid). Coolants that meet the AS 2108-2004 standard with a freezing point of -12°C or lower (when used at their minimum recommended concentration) are "Type A" coolants. Coolants that meet the AS 2108-2004 standard but that do not have a minimum "freezing point" requirement are "Type B" coolants. Under AS 2108-2004, these "Type B" coolants do not need to provide protection against freezing. The Australian Standard is rather unique in this respect, as it recognises that due to our Australian climate a coolant may not need to provide protection against freezing temperatures. Importantly, however, both "Type A" and "Type B" coolants need to meet certain minimum performance standards (eg minimum standards of corrosion protection).

Does colour indicate the chemical or technical properties of the coolant?

No. The colour of the coolant comes from the dye added by the coolant manufacturer and should never be used to distinguish the type of coolant.

Can I use tap water to dilute coolants?

This depends on the quality of the tap water. Tap water with high levels of "hardness", chlorides and dissolved solids will be unsuitable for use with coolants. If unsure, the use of demineralised water is best to avoid scale and deposit build-up in the system.

Chiron Chemicals is an ISO 9001:2015 and IATF 16949:2016 certified manufacturer of engine coolants and industrial chemicals based in Victoria, Australia, with members on the international ASTM D15 Committee for Engine Coolants and Related Fluids - the key industry body for determining international coolant specifications and guiding industry trends.