



C5.3.2 GLOBAL ENVIRONMENTAL PROBLEMS

C5.3.2.2 Ozone hole problem

Ozone hole problem (C5.3.2.2)

Cat. No.	Description	C5.3.2.2
666 265	UV-IR-VIS experiment kit	1
524 005W	Mobile-CASSY 2 WiFi	1
524 220	CASSY Lab 2	1
524 0511	Lux adapter S	1
666 246	UV-C sensor	1
667 818	Spark gap supply unit	1
500 621	Safety connecting lead 50 cm, red	1
500 622	Safety connecting lead 50 cm, blue	1
667 489	Crocodile clips, insulated, set of 2	1
667 241	Rubber bellows, single bulb	1
665 957	Disposable syringe, 1 ml, with Luer fitting	1
603 030	Cannulae, 0.6 mm diam., set of 10	1
671 6600	Dichloromethane, 250 ml	1
	additionally required: PC with Windows 7 or higher with WIFI or USB connection	1

In experiment C5.3.2.2, the UV-IR-VIS experimentation kit is used to demonstrate the absorption of UV-C radiation by ozone and the formation and decomposition of ozone. The ozone layer in the stratosphere (at a height of 15 to 50 km) is vitally important to life on Earth. Without its protective effect, strong short-wave UV radiation would make life outside of water impossible. The ozone layer acts as a filter for radiation from 220 to 310 nm. As a result it completely absorbs UV-C radiation (220 nm to 280 nm) and absorbs most of the UV-B radiation (280 nm to 320 nm). For that reason, a reduction in the ozone concentration (ozone depletion, „ozone hole“) is increasing the intensity of biologically effective UV-B radiation. This can damage plants, thereby reducing harvest yields. Phytoplankton (types of algae at shallow ocean depths) are also affected - an important link in the food chain of the sea. Because it also absorbs a considerable quantity of carbon dioxide, it represents an integral part of the carbon cycle and plays a role in the greenhouse effect. Ozone forms in the stratosphere by the effect of hard UV radiation on oxygen.