



The Strange Case of Mole Airlines Flight 10-23

Scene of the Crash:

At 6:02 a.m. you and your team of medical examiners are called to the scene of a plane crash. You find evidence of a pre-crash explosion and determine the cause of the explosion to be Trinitrotoluene (also known as TNT). You and your team pack up the bodies of the passengers on the flight and head back to the lab. The Airline gives you the list of names and a few facts about each passenger on the flight. It is your job to identify the passengers by the substances found in or on their bodies since they are not recognizable.

Your Job:

1. Determine the substances found on each body according to the chemical information available and finding the empirical formula.
2. Identify the passenger by the most likely match between the description and the chemicals found.
3. Identify the most likely suspect in the explosion.

Possible Compounds

IDENTITY	FORMULA	NOTES
Codeine	$C_{18}H_{21}NO_3$	Pain killer, prescription controlled
Cocaine	$C_{17}H_{21}NO_4$	Narcotic, illegal
Aspartame	$C_{14}H_{18}N_2O_5$	Artificial Sweetener
Trinitrotoluene	$C_7H_5N_3O_6$	Explosive (TNT)
Nitroglycerine	$C_3H_5N_3O_9$	Heart Medication
Curare	$C_{40}H_{44}N_4O$	Poison
Thiobromine	$C_7H_8N_4O_2$	Chocolate Flavoring
Strychnine	$C_{21}H_{22}N_2O_2$	Rat Poison
Dimetacrine	$C_{10}H_{13}N$	antidepressant
Acetaminophen	$C_8H_9NO_2$	Tylenol

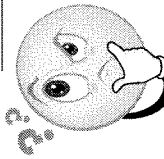
Passenger	Notes
Redd D Ticroak	Has a heart Condition
Polly Pillcounter	Pharmacist
Hoagie Bunn	Baker
Archie Givengrades	Teacher—addicted to sugar free drinks
Vermin B. Gone	exterminator
Ivanna Bedown	Engineer—severely depressed
Iselle Ubye	Suspected Drug Dealer
Norm Anderson	International Businessman
Chip N. Schulder	Wife is having an affair in a city close to the crash
Hertz Alltime	Suffers from an old high school football injury

Name: _____ Blk: _____ Date: _____ Blk: _____ ATTACH WORK- NO CREDIT W/O IT!!

Flight 1023 —Data Sheet

Use the following molar masses:

12.01 for Carbon 1.01 for Hydrogen 14.00 for Nitrogen 16.0 for Oxygen



Passenger ID	Percent Composition				Location	Empirical Formula	Substance Name	Person
	C	H	N	O				
1	67.31	6.98	4.62	21.10	Blood			
2	72.15	7.08	4.68	16.03	Pockets (2000 tablets)			
3	80.48	7.45	9.39	2.68	Pockets with syringe			
4	81.58	8.90	9.52	---	Pockets			
5	63.56	6.00	9.27	21.17	Pockets			
6	46.66	4.48	31.1	17.76	Stomach			
7	37.01	2.22	18.5	42.27	Skin and Pockets			
8	57.14	6.16	9.52	27.18	Pockets and stomach			
9	15.87	2.22	18.15	63.41	Blood and Pockets			
10	75.42	6.63	8.38	9.57	Pockets			

Who is the main suspect in the plane crash? _____