

Equations

From EVEDev

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Industrial Equations

BaseTimes: Number found in invBlueprintTypes table of Data Dump
SlotModifier: Bonuses granted by POS labs, Outposts, or standard factory slots
SkillLevel: Character's level of indicated skill
ME/PE: The ME or PE level of the Blueprint
MaterialAmount: Base amount of material needed. Also equals the perfect amount
ProductionEfficiency: Production Efficiency skill level
ROUND(*x*): Round *x* to nearest integer. (Fractional part less than 0.5 rounds down, otherwise round up.)
CEIL(*x*): Round *x* up.

ME Effect On Waste (ME ≥ 0)

$$\text{Waste} = \text{ROUND} \left(\text{MaterialAmount} \times (\text{BaseWasteFactor}/100) \times \left(\frac{1}{ME + 1} \right) \right)$$

ME Effect On Waste (ME < 0)

$$\text{Waste} = \text{ROUND} (\text{MaterialAmount} \times (\text{BaseWasteFactor}/100) \times (1 - \text{ME}))$$

ME Level to Eliminate Waste

$$\text{PerfectME} = \text{FLOOR} (0.02 \times \text{BaseWasteFactor} \times \text{MaterialAmount})$$

(Source (<http://www.eveonline.com/ingameboard.asp?a=topic&threadID=1297383>))

Production efficiency Waste

$$\text{Waste} = \text{ROUND} (((25 - (5 * \text{ProductionEfficiency})) * \text{MaterialAmount}) / 100)$$

Waste Skill Based (Seems to be incorrect)

$$\text{SkillWaste} = \text{ROUND} (\text{MaterialAmount} \times ((25 - (5 \times \text{ProductionEfficiency})) / 100))$$

ME Research Time

$$\text{MEResearchTime} = \text{BlueprintBaseResearchTime} \times (1 - (0.05 \times \text{MetallurgySkillLevel})) \times \text{ResearchSlotModifier} \times \text{ImplantModifier}$$

PE Research Time

$$\text{PEResearchTime} = \text{BlueprintBaseResearchTime} \times (1 - (0.05 \times \text{ResearchSkillLevel})) \times \text{ResearchSlotModifier} \times \text{ImplantModifier}$$

Copy Time

$$\text{CopyTime} = \text{BlueprintBaseCopyTime} \times (1 - (0.05 \times \text{ScienceSkillLevel})) \times \text{CopySlotModifier} \times \text{ImplantModifier}$$

Production Equations

$$PTM = ProductionTimeModifier = (1 - (0.04 \times IndustrySkill)) \times ImplantModifier \times ProductionSlotModifier$$

Production Time (PE ≥ 0)

$$ProductionTime = BaseProductionTime \times \left(1 - \left(\frac{ProductivityModifier}{BaseProductionTime} \right) \times \left(\frac{PE}{1 + PE} \right) \right) \times PTM$$

Production Time (PE < 0)

$$ProductionTime = BaseProductionTime \times \left(1 - \left(\frac{ProductivityModifier}{BaseProductionTime} \right) \times (PE - 1) \right) \times PTM$$

Reprocessing Equations

Station tax when refining/reprocessing

$$StationTaxes = 5 - (0.75 \times YourStanding)$$

For the station to take 0% you need a standing to the station owner of at least: 5 / 0.75 = 6.67

Effective Refining Yield

$$EffectiveRefiningYield = StationEquipmentYield + 0.375 \times (1 + (RefiningSkillLevel \times 0.02)) \times (1 + (RefiningEfficiencySkillLevel \times 0.04)) \times (1 + (OreSpecificProcessingSkillLevel \times 0.05))$$

Invention Equations

Invention Time

$$InventionTime = BlueprintBaseInventionTime \times InventionSlotModifier \times ImplantModifier$$

Invention Chance

$$InventionChance = BaseChance \times (1 + 0.01 \times EncryptionSkillLevel) \times (1 + (Datacore1SkillLevel + Datacore2SkillLevel) \times \left(\frac{0.1}{5 - MetaLevel} \right)) \times DecryptorModifier$$

Research Points Per Day

$$ResearchPointsPerDay = Multiplier \times \left(1 + \frac{AgentEffectiveQuality}{100} \right) \times (YourSkill + AgentSkill)^2$$

Multiplier: A specific multiplier for the research field you want to do research in. Like 3x for starship engineering

Your_Skill: Your skill level in the research field

Agent_Skill: The agent's skill level in the research field

Mission Equations

Agent Effective Quality

$$AgentEffectiveQuality = AgentQuality + (5 \times NegotiationSkillLevel) + AgentPersonalStanding$$

AgentPersonalStanding: The Agent's personal standing towards you.

Effective Standing

$$EffectiveStanding = YourStanding + ((10 - YourStanding) * (0.04 * (ConnectionsSkillLevel OR DiplomacySkillLevel)))$$

Connections_Skill_Level is used when Your_Standing is larger than 0.0 Diplomacy_Skill_Level is used when Your_Standing is less than 0.0

Required Agent Standing

$$RequiredAgentStanding = (AgentLevel - 1) * 2 + (AgentQuality / 20)$$

Mission Standing Increase

$$MissionStandingIncrease = (BaseMissionIncrease*(1+(0.05*YourSocialLevel)))$$

Agent Efficiency

$$AgentEfficiency = (0.01 * ((8 * AgentLevel) + (0.1 * AgentQuality) - 4))$$

Skillpoint Equations

Skillpoints At Specific Level For Specific Rank

$$SkillpointsAtLevel = 2^{(2.5*SkillLevel)-2.5} * 250 * SkillRank$$

Note that the there can be a 1 skillpoint difference for some rank and level combinations, due to rounding issues

Effective Attribute

$$EffectiveAttribute = BaseAttribute + ImplantAttributeBonus$$

Skillpoints Per Minute

$$SkillpointsPerMinute = EffectivePrimaryAttribute+(\frac{EffectiveSecondaryAttribute}{2})$$

Note that the attribute values listed in the character sheet, have had their decimals chopped off.

Fighting Equations

Targetting lock time

$$Time = \frac{40,000}{YourEffectiveScanResolution \times asinh(TargetEffectiveSignatureRadius)^2}$$

Align Time in seconds

Reference: <http://wiki.eveonline.com/wiki/Acceleration>

$$Time = \frac{\ln(2) \times Inertia Modifier \times Mass}{500,000}$$

Trade Equations

Broker Fee

See: <http://www.eveonline.com/ingameboard.asp?a=topic&threadID=1440333>

$$BrokerFee\% = \frac{1.000\% - 0.050\% \times BrokerRelationsSkillLevel}{2^{(0.1400 \times FactionStanding + 0.06000 \times CorporationStanding)}}$$

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